Gazing Into the Crystal Ball: Are Majority Groups Threatened by a Minority-Majority
Future?

By

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Abstract

By the mid to late 21st century, it is projected that ethnic European majority groups will account for less than half the total populations of many Western countries. As a result of this projected ethnic shift, these countries will become “minority-majority” nations. Three experiments were conducted in New Zealand to investigate how present-day majority group members (New Zealand Europeans) perceive and react to a projected minority-majority future. It was found that those exposed to a minority-majority future expressed greater feelings of ingroup sympathy than those presented with present-day demographic information. However, contrary to the findings of similar research conducted in North America, the minority-majority future was not associated with negative attitudes towards migrants or greater ingroup serving biases. When comparing two projected future conditions (New Zealand European-majority future vs. a minority-majority future), participants in the minority-majority condition expressed greater belief that the nation would possess more positive characteristics than those in the New Zealand European-majority condition. Additionally, the experimental condition was found to moderate the relationship between future expectations and present-day attitudes and action intentions. Depending on the strength of expectations for future societal dysfunction, development, and benevolence, participants in the minority-majority condition were more or less likely to engage in present-day pro-diversity actions or perceive diversity as threatening. Implications for theoretical research and New Zealand intergroup dynamics are discussed.

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Table of Contents

Abstract	ii
Acknowledgements	iii
Table of Contents	iv
List of Tables	vii
List of Figures	viii
Overview	1
The Changing Face of Nations	2
Intergroup Dynamics	4
Threats: Types, Consequences, and Antecedents	5
Realistic threats	5
Symbolic threats	6
Consequences of threat	6
Antecedents to threat	7
A key limitation of the ITT: Projections of the future	10
Future Threats	11
The Outten, Schmitt, Miller, and Garcia (2012) Study	11
The Craig and Richeson (2014a) Study	13
Future Context and Present-day Perceptions	14
Collective Futures Framework (Bain et al., 2013)	16
The Current Research	19
The New Zealand Context	19
New Zealand biculturalism	20
Beyond biculturalism	21
A NZ European Perspective?	23
Overview of Studies	25
Study 1a	26
Method	27
Participants	27
Procedure	27
Materials and measures	28
Results	32
Intergroup emotions	32

Racial bias.....	33
Discussion	34
Comparison between New Zealand, Canadian, and US studies.....	34
Replication overview and implications for Study 1b.	35
Study 1b	35
Method	37
Participants.	37
Procedure.....	37
Materials and measures.	38
Results	39
Intergroup emotions.....	39
Racial bias.....	41
Attitudes towards specific minority groups.....	42
Discussion	44
Perceptions of demographic change and implications for Study 2.	44
Study 2	45
Method	46
Participants.	46
Procedure.....	47
Materials and measures.	47
Results	54
Factor analysis.	55
Descriptive statistics for Study 2.....	57
Intergroup emotions.....	58
Racial bias.....	60
Attitudes towards specific minority groups.....	60
Action intention to support diversity.	62
Threat perception of diversity.....	63
Ingroup benefit from diversity.....	63
Collective futures dimensions.	64
Discussion	69
General Discussion	71
New Zealand Response to a Minority-Majority Future	72
Threat related measures.	72
Future expectations.....	74

Prospective dominant group perspective.....	77
Limitations	81
Future Directions.....	84
Conclusion.....	86
Appendix A.....	105
Replication Overview of Study 1a	105
Appendix B	109
Descriptive Statistics of the Feelings Thermometer Measures of Study 1b and Study 2 ..	109
Appendix C	110
Supplementary Table of Intergroup Emotion Items from Study 2.....	110
Appendix D.....	111
Paper Version of Online Surveys for Study 1a, Study 1b, and Study 2.....	111
Study 1a and Study 1b IPRP Participant Information Sheet	111
Study 1a Community Participant Information Sheet.....	112
Study 1a and Study 1b Present-day Newspaper Article	113
Study 1a and Study 1b Future Condition Newspaper Article	114
Study 1a Survey Questions.....	115
Study 1b Survey Questions.....	117
Study 1a and Study 1b IPRP Participant Debriefing Sheet	120
Study 1a Community Participant Debriefing Sheet	121
Study 2 IPRP Participant Information Sheet	122
Study 2 NZ European-majority Condition Newspaper Article	124
Study 2 Minority-majority Condition Newspaper Article.....	125
Study 2 Survey Questions.....	126
Study 2 IPRP Participant Debriefing Sheet.....	132

List of Tables

Table 1	<i>Mean Difference Comparison for Warmth Between Specific Ethnic Groups in New Zealand.....</i>	43
Table 2	<i>Items of the Collective Futures Dimensions.....</i>	51
Table 3	<i>Fit Indexes for Confirmatory Factor Analyses of the Intergroup Threat Scale.....</i>	56
Table 4	<i>Descriptive Statistics for All Measures Across Experimental Groups.....</i>	58
Table 5	<i>Mean Difference Comparison for Warmth Between Specific Ethnic Groups in New Zealand.....</i>	62
Table 6	<i>Descriptive Statistics Using Welch's t-Test to Compare Individual Item Means for Collective Future Dimensions.....</i>	65
Table 7	<i>Moderating Effect of Experimental Condition Between Collective Futures Dimensions and Outcome Variables Associated with Diversity.....</i>	67
Table 8	<i>NZ Europeans' Warmth Towards Specific Ethnic Groups in New Zealand in Study 1b.....</i>	109
Table 9	<i>NZ Europeans' Warmth Towards Specific Ethnic Groups in New Zealand in Study 2.....</i>	109
Table 10	<i>Paired Samples t-Test Comparing Emotion Items for NZ Europeans and Minorities by Experimental Condition.....</i>	110

List of Figures

<i>Figure 1.</i>	Projections of New Zealand population growth by ethnicity from 2013-2063.....	4
<i>Figure 2.</i>	The collective futures framework in relation to demographic change.....	17
<i>Figure 3.</i>	NZ Europeans' feelings of warmth towards specific ethnic groups in New Zealand by experimental condition in Study 1b.....	42
<i>Figure 4.</i>	Demographic pie charts for the minority-majority condition article for Study 2.....	48
<i>Figure 5.</i>	NZ Europeans' feelings of warmth towards specific ethnic groups in New Zealand by experimental condition in Study 2.....	61
<i>Figure 6.</i>	Moderating effect of experimental condition on the relationship between collective futures dimensions and perceptions towards diversity.....	69

Overview

It is the early 19th century in Aotearoa and trade with the Pākehā, the fair-skinned foreigners, is going well. The value of the goods brought by these traders is undeniable, and they are eagerly embraced. Those who have sailed amongst these newcomers, to places such as Britain or France, have returned and speak of other promising resources waiting to be brought back and adapted by Māori, for Māori. Contact with the Pākehā is good and is improving the lives of the people. Though the number of these Pākehā had risen of late causing some to voice concerns, these fears are allayed by the knowledge that, compared to Māori, the newcomers will always be vastly outnumbered.

While simplistic, this fictitious narrative is based on New Zealand history and takes place during ‘contact era’ between predominantly British traders and the Māori, the indigenous peoples of New Zealand (Wright, 2013). Taken from the perspective of the Māori, the positive benefits of trade may have conjured images of a brighter future for the people which, in turn, positively influenced perceptions and willingness to further establish economic and political ties. However, in these early days of trade, who amongst the Māori could have predicted the ensuing transformation about to unfold in their land? Though the complex combination of inter- and intragroup conflict, disease, mass immigration, and many other factors, the culture and future of Aotearoa was profoundly altered by British influence, evolving into the country of New Zealand the world knows today (Sinclair, 1991).

In retrospect, it is easy to ask the question – if the Māori knew that they would become a minority in their own land, would they have had the same attitudes towards the early British or would this knowledge have impacted their views and actions towards this small, but steadily increasing group? While it may be futile to speculate over past events, a very similar question is becoming increasingly important again in New Zealand and for other

nations where indigenous populations were supplanted by European migration. This time around, however, it is the descendants of the European migrants who face a similar transition as they are predicted to lose population majority in their countries. This expected ethnic shift is the central focus of this thesis and drives the primary question of the research: How do majority group members in New Zealand react when faced with the impending loss of their ingroup population dominance?

To address this question, a series of three studies were conducted in New Zealand which assessed ethnic majority group members' perception of impending demographic changes in the country. The first two studies replicated the experimental methodology used in previous research to investigate whether exposure to an impending ethnic shift would elicit negative emotions towards minority groups and increase ingroup favouring biases. In the final study, the experimental design was extended and incorporated a study framework which links participants' thoughts about future societal change with their present-day attitudes and behaviour intentions associated with this change.

This thesis is structured into three general sections. The first is a brief introduction covering theoretical, historical, and societal elements pertinent to the research. Next, the three studies are presented, each accompanied by brief introduction and discussion sections. Finally, a general discussion is presented linking the research to relevant literature and offers insights into the limitations of the studies and considerations for future directions of research. The thesis concludes with a reference section and appendices.

The Changing Face of Nations

At present, global migration is occurring on an unprecedented scale. From 1990 to 2013, the number of international migrants increased from 154 million to 232 million people (United Nations, 2013). Including domestic migrants (i.e., those who move from rural areas

to urban areas), roughly over one billion people were identified as migrants in 2015 (International Organization for Migration, 2015). For some receiving countries, this and other population factors (e.g., differing birth rates between ethnic groups), has brought about profound changes to national ethnic diversity. Since 1981, Canada's visible minority population has grown from 4.7% to 22.3% of the country's total population in 2016 (Statistics Canada, 2017a). Currently in the United States (US), the proportion of the population who identify as non-White (including the total Hispanic or Latino population) totals 38.7% of the country (US Census Bureau, 2016) compared to roughly 12.5% in the 1970s (Hobbs & Stoop, 2002). New Zealand also has undergone a rapid demographic transformation. Since reforming immigration policy in the mid-1980s and early 1990s, the country has experienced a boom in immigration from many non-European countries (Ward & Masgoret, 2008). In 1986 approximately 85% of population were of European descent, or in the terms utilised by the New Zealand Census, "New Zealand European" (NZ European; Ho, 2015). As of the 2013 New Zealand Census of Population and Dwellings, however, this ethnic group accounted for 74% of the nation's population (Statistics New Zealand, 2015a).

Beyond the similarities in national ethnic populations, these three countries (i.e., Canada, New Zealand, and the US) are also predicted to undergo the same population milestone in the mid to late 21st century. If trends continue, all three will have a new population majority comprised of an immigrant or minority collective that outnumbers the current ethnic majority group. This projected ethnic shift means that each country will become a "minority-majority" nation, as opposed to the current majority-minority situation (for reviews see: Statistics Canada, 2017b; Statistics New Zealand, 2015b; US Census Bureau, 2012). Examining the predicted figures for New Zealand specifically, there is a 90% chance that the NZ European ethnic group will account for approximately 55.3% of the total population by 2038 (Statistics New Zealand, 2015b). Extending from the data and estimates

from Statistics New Zealand, if these trends continue the total number of individuals from minority groups will outnumber those of the previous NZ European majority by the year 2063 (see Figure 1).

Figure 1. Projections of New Zealand population growth by ethnicity from 2013-2063.

At the most basic level of interpretation, ethnicity can be seen as merely an indicator of one's ancestral geographic birth location. But, when dealing with human perception and interactions, these seemingly harmless differences have been central to many historical conflicts and contribute to many of the social and political tensions seen today (Sarkees & Wayman, 2010). Due to the ongoing challenges relating to intergroup relations, gaining insight into how people understand current dynamics and future intergroup changes is essential.

Intergroup Dynamics

Over the years there have been numerous attempts to explain why conflict arises between groups. In many of these theories, intergroup tensions are based to some extent on perceiving other groups as threatening to ingroup survival (for a review see Riek, Mania, &

Gaertner, 2006). Of these theories, the intergroup threat theory (ITT; Stephan & Renfro, 2002) is central to this work as it features as the main theoretical basis for understanding and interpreting the manifestation of threat when investigating the research question of this thesis. In this section, a general overview of the ITT will be provided in addition to addressing other considerations for the research.

Threats: Types, Consequences, and Antecedents

In the ITT, threats are organised under two basic categories: realistic threats and symbolic threats (Stephan, Ybarra, & Rios Morrison, 2009). Realistic threats are associated with the potential of physical harm or access to resources while symbolic threats impact the “integrity or validity of the ingroup’s meaning system” (p. 43-44). While earlier versions of the ITT included intergroup anxiety (i.e., expectation of negative outcomes such as embarrassment or ridicule which arise from interacting with outgroups) and negative stereotypes (i.e., the perceived characteristics of an outgroup such as being lazy, immoral, violent, etc.; Stephan & Stephan, 2000) as primary types of threat, these were later repositioned in the theory (Stephan & Renfro, 2002). Negative stereotypes were reconceptualised a precursor to threat while intergroup anxiety was seen a subtype of threat relating to intergroup interactions.

Realistic threats. The basis for realistic threats grew from earlier threat theories which proposed that, when resources are scarce and groups possess different goals, the success of outgroups are perceived as threatening to the ingroup. This threat then leads to negative outgroup attitudes (Sherif & Sherif, 1969). While the threats are centred on physical harm or tangible resources (e.g., food, land, money), they can also relate to the maintenance, access, and distribution of these resources (e.g., threat of losing political or economic power; Bobo, 1983). In the ITT, additional distinction is drawn between realistic threats to the

individual and to the larger group (Stephan et al., 2009). Group threats are similar to those of earlier theories (e.g., threats to group power, resources, and welfare) while, for the individual, these threats relate to actual physical harm or material loss (e.g., endangered personal safety, economic loss for a person). Over the years, the relationship between realistic threats and negative outgroup attitudes and behaviours have been well established, manifesting across cultures, age groups, and socioeconomic status (for a review see Jackson, 1993).

Symbolic threats. Symbolic threats are those that relate to intangible aspects of group membership and identity (Stephan & Renfro, 2002). These include, but are not limited to: beliefs, ideologies, religion, morality, and general worldviews. The concept of symbolic threats grew from concerns over the explanatory power of realistic threat theories alone, as they did not sufficiently explain prejudicial attitudes and behaviours when a conflict over resources was not evident (Kinder & Sears, 1981). Like realistic threats, symbolic threats are also distinct for groups versus the individual (Stephan et al., 2009). While symbolic group threats relate to concerns associated with the symbolic elements outlined above, for the individual, symbolic threats relate to the “loss of face or honor and the undermining of an individual’s self-identity or self-esteem” (p. 44). While a considerable amount of research on symbolic threat focuses on race and ethnicity (e.g., Onraet & Van Hiel, 2013; Quillian, 1995; Sibley & Liu, 2004), the impact of these types of threats has also found support in other fields of psychology ranging from sexual orientation (Brambilla & Butz, 2013) to religion (González, Verkuyten, Weesie, & Poppe, 2008).

Consequences of threat. The ITT identifies that feeling threatened can have cognitive, emotional, and behavioural implications (Stephan et al., 2009). Cognitively, the response to threat perception is wide ranging, and has been associated with increasing negative stereotypes (Quist & Resendez, 2003) and attitudes (Jackson, 1993), prejudices (González et al., 2008), and authoritarianism (Duckitt & Fisher, 2003). Additionally,

cognitive biases are also triggered by threat. When threatened, groups can display higher levels of ingroup preference (Craig & Richeson, 2014a) and perceive negative acts from outgroups as being related to group membership characteristics rather than considering situational factors (Pettigrew, 1979). Regarding emotions, threat has been found to elicit feelings towards outgroups such as fear, anger, disgust, and resentment (Mackie, Devos, & Smith, 2000; Outten, Schmitt, Miller, & Garcia, 2012), as well as feelings of sympathy and vulnerability towards the ingroup (MacLeod & Hagan, 1992; Outten et al., 2012). From these psychological and emotional responses, perceiving threats are seen to provoke ingroup preserving behaviours designed to improve the state of one's ingroup or reduce the competitiveness of relevant outgroups (Esses & Jackson, 2009; Mackie et al., 2000). Examples of such behaviours include "withdrawal, submission, discrimination, lying, cheating, stealing, harassment, retaliation, sabotage, protests, strikes, warfare, and other forms of open intergroup conflict" (Stephan et al., 2009, p. 52).

Antecedents to threat. An important element of the ITT is the understanding that threat perception is not merely a black-and-white process. There are many precipitating factors which can influence whether a person will perceive a situation as threatening when another individual would not. In the ITT, threat perception is contingent on four basic antecedents: individual differences, situational factors, cultural dimensions, and intergroup relations (Stephan et al., 2009). While individual differences (e.g., self-esteem, self-image, personality traits) and situational factors (e.g., home life, work life, school life) are acknowledged as important elements of threat perception, only the more distal factors of cultural dimensions and intergroup relations are covered in detail as the present research examines perceptions associated with projected change on a country-wide scale.

Cultural dimensions. Based on the norms, traditions, and values of a culture, situations or actions perceived as threatening by one group may not be seen as threatening by

another. The ITT considers the influence of cultural difference and identifies certain constellations of general group level values which may be particularly relevant to threat perception (Stephan et al., 2009). These can vary in a wide variety of ways including how cultures prioritise individual or group needs and desires (Triandis, 1995), interpret and manage inequality and competition (Hofstede, 1980), relate to cultural tradition (Hofstede & Bond, 1988), and plan for the future (Hofstede & Minkov, 2010). An example of culture's role in perceiving threats relates to the dimension of power distance, or the degree to which inequality is tolerated and accepted within a culture (Hofstede, 1980). High power distance cultures tend to form hierarchies and typically report higher rates of conflict and violence related to maintaining rank and status (Hofstede, 2001). Cultures with low power distance stress equality amongst individuals and can perceive others who advance or promote themselves over others as threatening and attempt to undermine their efforts (Kirkwood, 2007; Pierce, Hodge, Taylor, & Button, 2017).

Intergroup dimensions. According to the ITT, three antecedents of threat exist irrespective of culture. These are the relative power held by each group, historical group conflicts, and the size of each group in relation to one another (Stephan et al., 2009). In relation to group power, researchers have found that low-power groups are often more likely to perceive threats than high-power groups as they are typically at the mercy of the larger group (Rousseau & Garcia-Retamero, 2007; Stephan et al., 2002). Though high-power groups are less likely to perceive threats, they are more likely to react strongly to perceived threats as the stakes for losing their position or resources are higher than lower-power groups (Riek et al., 2006). This is exemplified in a study by Morrison, Fast and Ybarra (2009) where group status was positively associated with the endorsement of group-based inequality under threatening conditions. However, at the same time, if the group perceives their impending disadvantage to be justified by a legitimate or historical reason (e.g., a dominant group pays

reparations for past offences against a minority group) they are less likely to perceive their loss of status or resources as threatening (Jetten, Schmitt, Branscombe, Garza, & Mewse, 2011).

In intergroup dynamics literature, group size has also been identified as a factor in threat perception. From the perspective of the larger dominant group, perceptions of minority groups are impacted by their relative proportion in the overall population (Blalock, 1967; Blumer, 1958; Quillian, 1995). In line with group threat theory (Blumer, 1958), the ITT identifies that when minority groups are larger they can be seen as threatening to the dominant group's access to resources and privileged place in society (Stephan et al., 2009). This line of reasoning has been supported across numerous dominant group perspective studies which found increasing minority group size to be associated with greater negative outgroup attitudes (Bobo, 1999; Jackson, 1993; Quillian, 1995, 1996; Schlueter & Wagner, 2008).

However, minority group size alone is not an absolute determinant of threat. Some studies found no relationship between group size and negative outgroup sentiments (Hjerm, 2007; Strabac & Listhaug, 2008), while in others, only perceived group size and not actual group size was related to threat (Semyonov, Raijman, Yom Tov, & Schmidt, 2004). In addition, some research has even found increasing outgroup size to be associated with positive outgroup perceptions (Lubbers, Counters, & Scheepers, 2006). These conflicting results highlight an important distinction between real versus perceived group size, and the need to consider other factors such as outgroup similarity and intergroup contact – both of which contribute to positive and negative outgroup perceptions (Allport, 1954; Garcia-Retamero, Müller, Rousseau, 2012; Schlueter & Wagner, 2008).

A key limitation of the ITT: Projections of the future. With its consideration of the antecedents, types, and consequences of threat, the ITT captures the major facets of threat perception. In addition, the ITT complements other threat models which examine emotional responses to threat (e.g., intergroup emotion theory; Mackie et al., 2000) and behavioural responses to perceived group competition (e.g., unified instrumental model of group conflict; Esses & Jackson, 2009). However, as clearly as the ITT and other threat theories explain the process of perceiving threats, an important aspect of threat that is not well established relates to real future changes in group dynamics.

In some sense, expectations for the future are central to psychological based threat theories. Often, outgroups are seen as threats because their presence and actions jeopardise not only the ingroup's present wellbeing, but also their continued success in the future. It is this threat to future survival that prompts action to be taken to promote greater ingroup outcomes (Esses & Jackson, 2009). With this conceptualisation, the future is vague and changeable due to actions taken in the present. Because of this, threats and their consequences have been primarily studied in terms of what has happened in the past, what is happening now, and what may happen in the future to make sense of how intergroup dynamics unfold. However, with the expected (and possibly inevitable; Wazwaz, 2015) ethnic shift from majority-minority to minority-majority populations in Canada, New Zealand, and the US, the question is no longer what may happen, but what *will* happen. Due to this distinction, the existing literature on intergroup dynamics, and group size in particular, can only provide limited insight into the psychological implications of this anticipated phenomenon.

To date, only a handful of studies have specifically explored the psychological ramifications of a projected ethnic minority-majority shift. In the next section, two of these studies are reviewed in detail. Conducted in Canada and the US, researchers directly assessed

majority group perceptions towards their country's impending shift to a minority-majority population. These studies are central to this thesis as they provide the basis for the experimental design and methodology employed to examine the impending ethnic shift to a minority-majority population in New Zealand.

Future Threats

Much of the existing literature on intergroup dynamics has focused on the state of relationships in the present day with dominant and minority groups existing as stable entities. Whether it be from the perspective of dominant groups (e.g., Cottrell & Neuberg, 2005) or minority group perceptions towards the majority group (e.g., Wohl, Branscombe, & Reysen, 2010), the primacy of the dominant group status has never been challenged. However, with the advent of rapid global migration, a new paradigm is expected to emerge – the rise of minority-majority nations. Examining this transition, Outten, Schmitt, Miller, and Garcia (2012) and Craig and Richeson (2014a) provide the first insights into majority group perceptions of this expected ethnic shift.

The Outten, Schmitt, Miller, and Garcia (2012) Study

The first to explore majority group perceptions of the impending change to minority-majority group dynamics, Outten and colleagues (2012) conducted two studies to examine the expected shift in Canada and the US. In their research, the authors drew from intergroup emotions theory (Mackie et al., 2000) which proposes that an individual can perceive threats and feel emotions associated to group membership. If an event is perceived to be threatening to the group, negative emotions (e.g., anger and fear) are felt towards outgroups. Outten et al. (2012) predicted that for Whites ("White" is the label used for members of the dominant ethnic group for both countries), losing population majority would be perceived as threatening to their ingroup and associated with increased anger and fear towards minorities.

In addition, they theorised that the impending ethnic shift would have further impact on emotions and attitudes. Majority group members would also express feelings of sympathy towards their own ingroup, feel less warm towards specific minority groups, have stronger ethnic identification, see increasing diversity as threatening, and that threat would mediate the relationship between demographic conditions and emotions.

To test their hypotheses, the authors used an experimental design to determine if ethnic shift information would impact majority group members' perceptions towards minorities. In their first study, White participants ($N = 209$) were randomly placed in one of two experimental conditions. In one condition, participants viewed a pie chart with the current demographics of their country (Whites as population majority). In the other condition, participants were presented with two charts, the first displayed the current national demographics and the second showing a predicted minority-majority population. In the second study (conducted exclusively in Canada), White participants ($N = 160$) in both experimental conditions reviewed two demographic pie charts of the ethnically diverse city of Vancouver – one for the present day and one for the year 2058. In one condition, the demographic breakdown was similar to that of the present day and depicted a White majority while the other depicted a minority-majority scenario. After reading the information, participants completed a battery of psychological measures assessing intergroup emotions (Studies 1 and 2), threat appraisals, feelings towards outgroups, and level of ethnic identification (Study 2 only).

The authors found consistent support for all of their predictions in both studies. Exposure to the ethnic shift information was associated with higher levels of anger and fear towards minority groups and higher levels of sympathy towards their own ingroup. Additionally, the White minority future was associated with higher levels of ethnic identification, higher levels of threat appraisal, and lower warmth and liking towards East

Asians. Moreover, appraisals of threat significantly mediated the relationship between experimental condition and all three types of intergroup emotion, but only for participants in the White minority condition. Taking the results of the experiments together, Outten and colleagues (2012) were the first to establish evidence indicating that loss of population majority was perceived to be threatening to majority group members. Further, this perceived threat was found to be associated with negative attitudes towards minority outgroups while simultaneously bolstering ingroup sympathy and ethnic identification.

The Craig and Richeson (2014a) Study

Influenced by the work of Outten et al. (2012), Craig and Richeson (2014a) conducted three studies in the US to investigate majority group members' perceptions of their impending loss of population majority. However, Craig and Richeson (2014a) focused on different forms of racial bias, mediating factors in negative outgroup perceptions, and whether majority group members' attitudes towards minorities would differ by minority group (i.e., African American, Asian Americans, and Latinos). They predicted that, in all three studies, participants would perceive the ethnic shift negatively and this would impact ingroup and outgroup sentiments, but were unsure as to how this would manifest for attitudes towards specific groups.

While the basic demographic shift manipulation was the same as Outten and colleagues (2012), Craig and Richeson (2014a) modified some elements of the experimental design. To convey the demographic shift information, the authors predominantly used newspaper articles instead of pie charts prior to administering their measures (pie charts were only used in their Study 1). The authors also incorporated other control conditions besides current national population estimates. This was done to increase certainty that Whites' reactions to ethnic shift information was specifically associated with their loss of population

majority as opposed to associations with an unknown variable. In their first study, as with Outten et al. (2012), White participants ($N = 92$) reviewed US national demographic information (current demographics or minority-majority projection). In the second study, white participants ($N = 57$) reviewed future ethnic shift information for either one of two countries (US minority-majority projection or increasing minority population projection in the Netherlands). Finally, in their third study, White participants ($N = 415$) were placed in different shift scenarios in the US (minority-majority projection vs. increase in people moving within the US).

Consistently, Craig and Richeson (2014a) found White Americans in the minority-majority shift scenario had stronger negative reactions towards minorities than in any of the control conditions. This group expressed greater levels of ingroup interaction preferences, pro-White/anti-Black/anti-Asian sentiments, and more negative attitudes towards ethnic minority groups. Additionally, the authors found no significant differences for Whites' attitudes towards the different ethnic groups, and that group status threat mediated the relationship between experimental condition and attitudes towards African Americans and Latinos, but not towards Asian Americans. These findings further indicated that, on a conscious and subconscious level, shifting ethnic dynamics and resulting perceived threat had a negative influence on intergroup attitudes.

Future Context and Present-day Perceptions

The preliminary work by Outten and colleagues (2012) and Craig and Richeson (2014a) provide compelling evidence that majority group members perceive their impending loss of population majority as a threat. Consistent with the ITT and other threat theories, exposure to this information triggered both psychological and emotional responses for majority group members (Mackie et al., 2000; Stephan & Renfro, 2002). Building from this,

Craig and Richeson (2014b) went on to identify other implications for behavioural intention relating to the ethnic shift, finding that exposure to minority-majority projections were associated with greater endorsement of political conservatism in White Americans. These studies have highlighted the importance of how even future events can impact present-day perceptions for majority group members. However, a major drawback from their work and many threat studies, is the lack of context in which these perceptions are based upon. In essence, which specific aspects of the expected future are being perceived as threatening and result in psychological and behavioural responses?

While future-oriented thinking has been studied across many fields in psychology, examining everything from emotional resilience to motivation (Aspinwall & MacNamara, 2005; Oettingen & Mayer, 2002), this avenue of research has received less attention in intergroup dynamics relating to threat (for an overview see Aspinwall, 2005). However, using future scenarios, Duckitt and Fisher (2003) found that expectations for future societal decline were associated with greater endorsement of authoritarian world views and support for social dominance (i.e., your ingroup should dominate and be superior over other groups; Sidanius & Pratto, 1999) – both major factors in threat perception (Onraet & Van Hiel, 2013). Relating to group size and threat perception, Wohl et al. (2010) identified that concerns about the future existence of one's group resulted in feelings of collective angst and a desire to engage in ingroup strengthening behaviours. Beyond these examples, future contexts have seen limited attention in the threat literature, and none at all in the budding field of minority-majority research. A novel approach to addressing this gap in the literature, however, may be through the use of the collective futures framework (Bain, Hornsey, Bongiorno, Kashima, & Crimston, 2013) – a study design that links an individual's contextual expectations for the future of their society with their present-day attitudes and intended behaviours associated with these future projections.

Collective Futures Framework (Bain et al., 2013)

With a paucity of studies connecting future projections with present-day attitudes and actions, Bain and colleagues' (2013) collective futures framework is ideally suited to examine this dynamic. To accomplish this, the framework addresses three main questions. First, what are the motivational implications of thinking about one's future society? Second, what is the content of these future projections? Finally, what is the general relationship between the future projections and the individual's present-day attitudes and beliefs? For these three questions, three general steps are provided which link beliefs about future society with present-day attitudes and behaviours. These steps are displayed in Figure 2.

First, an individual imagines their society in the future after a specific contextual change has occurred (e.g., a controversial political candidate is elected, global warming has been averted, etc.). Next, the individual reflects on two specific types of projections related to this future: (1) overall societal change and (2) changes in the traits and values of the people who live in the society. With respect to societal change, the individual reflects on the extent to which the future society will display higher or lower levels of *societal dysfunction* (e.g., violent crime) and *societal development* (e.g., economic development) compared to the society of today. The facets of societal dysfunction were based on theories associated with social disorganisation and disorder (Markowitz, Bellair, Liska, & Liu, 2001) while societal development items focused on community improvement and literature associated with social development and change (Kashima et al., 2011).

At the person level, trait dimensions were divided into two subtypes: *benevolence* (which relate to warmth of personality and morality) and *competence*. The warmth category arose from the stereotype content model (Fiske, Cuddy, Glick, & Xu, 2002) and reflect both positive (e.g., caring) and negative (e.g., insensitive) personality characteristics. The morality

category (e.g., unethical) was adapted from an existing morality research by Leach, Ellemers, and Barreto (2007). The value dimension was adapted from the Schwartz theory of basic human values (Schwartz, 2012) which postulates the existence of ten basic personal values organised under four higher order groupings of conservation (e.g., self-discipline), self-transcendence (e.g., social justice), openness to change (e.g., freedom), and self-enhancement (e.g., pleasure).

*Figure 2. The collective futures framework in relation to demographic change. Adapted from “Collective futures: How projections about the future of society are related to actions and attitudes supporting social change,” by P. G. Bain, M. J. Hornsey, R. Bongiorno, Y. Kashima, & D. Crimston, 2013, *Personality & Social Psychology Bulletin*, 39(4), p. 524. Copyright 2013 by the Society for Personality and Social Psychology, Inc.*

The final step of the collective futures framework connects an individual's expectations of future society to beliefs and intentions in the present day. This is accomplished by having participants respond to measures which target their attitudes or behaviours associated with either promoting or preventing the particular future from

occurring. Depending on the extent to which a participant endorses the future projection, the scores for the present-day measures will reflect their willingness to either support or reject the future scenario.

The collective futures framework has received empirical support for its design and utility. Used previously to examine the impact of future beliefs related to climate change (Bain et al., 2016; Milfont, Bain, Souza, Gouveia, & Kashima, 2014) and across a variety of social contexts (Bain et al., 2013), the framework has provided valuable insight into the conditions that motivate an individual to act in the present day. To illustrate, Milfont et al. (2014) were able to show that, when considering actions to avoid climate change in Brazil, study participants were more willing to act only when the future would result in a more developed and competent society. In terms of intergroup relations, Bain and colleagues (2013) found that, out of all the dimensions, future benevolence and (to a lesser extent) future societal dysfunction were the most consistent links between future expectations and present-day attitudes and action intentions. Whether it came to a future society that adopted more open views towards legalised abortion and recreational marijuana use or changes to the religious makeup of society, participants were more willing to support the social change if they felt that it would result in a more benevolent future, or a future that was less dysfunctional.

These studies provide clear examples of how the collective futures framework can be used to draw novel insights from reflecting on future expectations. With support for the framework already established in other fields of psychology, this research is the first to use this method to investigate present-day attitudes associated with a predicted minority-majority future. Based on the considerations raised thus far, the next section outlines the aims of the current research.

The Current Research

For over the last 160 years, NZ Europeans have been the dominant ethnic majority group in New Zealand by population (NZ History, 2014). Over the next 50 years, however, the proportion of NZ Europeans is expected to decrease dramatically and New Zealand may become a minority-majority nation. Though the literature on intergroup dynamics is vast and varied, to-date, there have been very few studies which examine this emergent phenomenon – and none conducted in New Zealand. The primary goal of this research is to investigate how, when envisioning the impending ethnic shift in New Zealand, do NZ Europeans perceive and react to this minority-majority future.

Recently, the anticipated shift to minority-majority nationhood was examined in Canada and the US. For members of the current ethnic majority group, the ethnic shift was associated with positive ingroup serving biases and emotions and with negative attitudes and emotions towards minorities (Craig & Richeson, 2014a, 2014b; Outten et al., 2012) which is consistent with threat literature (Stephan et al., 2009). While these previous studies have provided much needed insight into this budding field, interpreting the majority group members' perceptions were limited as the context and content of the future expectations were not ascertained. By replicating the work from previous minority-majority research in Study 1 and incorporating the collective futures framework into the methodological design in Study 2, this research attempts to add to the existing literature in this area and break new ground by linking future beliefs about the minority-majority future with present-day attitudes and behavioural intentions towards this expected ethnic shift.

The New Zealand Context

As one of the main antecedents of threat in the ITT, understanding cultural context is an important factor when perceiving threat in events and interactions (Stephan & Renfro,

2002). Therefore, examining how ethnic groups (NZ Europeans in particular) in New Zealand understand and interpret diversity is a key piece to the puzzle.

New Zealand biculturalism. Since the landing of the first British settlers in the early 19th century, intergroup dynamics between the Māori and the British have been a central feature of New Zealand's cultural identity (Wright, 2013). As highlighted in the early pages of this thesis, the balance of power between the British settlers and the Māori shifted in clear favour of the new migrants; however, despite its unevenness the nation developed a distinctly bicultural sense of identity seen unlike anywhere else in the world (Ward & Liu, 2012). A key source of this duality comes in one of the country's founding documents – the Treaty of Waitangi. While a debate over conflicting meanings between the English and the Māori language version exists to this day, this document essentially passed governance of the land over to the British while bestowing upon the Māori the rights and privileges of British citizens (NZ History, 2017). In contemporary New Zealand, the spirit of the Treaty continues to play a vital role in social and governmental decisions and, through the Waitangi Tribunal and the Office of Treaty Settlements, offers Māori a way to claim grievance over past breaches of the Treaty by the Crown and potentially receive recompense for these violations.

While some examples of New Zealand biculturalism and the enduring impact of Māori culture can be seen in everyday objects such as art and architecture and in social and government policy (Hayward, 2012), other aspects are intangible. Using the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998), Sibley and colleagues were able to identify that, for both NZ Europeans and Māori, ethnic symbols and faces of both groups were non-consciously associated with national identity (Sibley & Liu, 2007; Sibley, Liu, & Khan, 2008). This differentiated New Zealanders from other settler nations like the US (Devos & Banaji, 2005) and Australia (Sibley & Barlow, 2009) where being racially White was most strongly identified as implicit endorsement of nationhood.

While New Zealanders appear to display a wider interpretation of identity compared to other nations, this bicultural identity is not equal across all domains. In analysis of symbolic and resource distribution biculturalism in New Zealand, Sibley and Liu (2004) found that symbolic biculturalism was strongly endorsed by NZ Europeans, but biculturalism based on equal distribution of resources was not. In a follow-up study, Sibley, Robertson, and Kirkwood (2005) found further support for this distinction with opposition to resource-specific distribution policy being positively predicted by NZ Europeans' support for their social dominance. This finding was consistent with the work of Yogeeswaran and Dasgupta (2014) relating to multiculturalism (i.e., the acceptance and valuing of cultural diversity within a society). They identified that people were more supportive of multiculturalism when phrased abstractly ("Why is multiculturalism important?") than when presented in more concrete terms ("What can we do to support multiculturalism?"). Taken together, these dynamics are similar to the principle-implementation gap which notes that majority group members are more inclined to support abstract principles relating to race equality over concrete governmental policies that result in tangible changes (see e.g., Dixon, Durrheim, & Tredoux, 2007; Sears, Van Laar, Carillo, & Kosterman, 1997).

Beyond biculturalism. When considering the cultural identity of New Zealanders, it is important to return to the immense impact of immigration reform and shifting ethnic demographics. Based on numbers alone, New Zealand is now a multicultural nation (Statistics New Zealand, 2015a). As of the most recent census, 74% of the population identified as NZ European, 15% identified Māori, 12% Asian, 7% Pacific Islanders, and 1% Middle Eastern/Latin American/African. For existing ethnic groups in the country, this shift might bring with it different interpretations of cost and benefit. For the Māori, this change has been widely seen as negative. With the rapid rise in Asian population, and Chinese in

particular, many Māori fear growing economic and social challenges associated with this increase and the possible dilution of their claims based on the Treaty of Waitangi (Ip, 2003).

For NZ Europeans, increasing diversity has been met with mixed support. Historically, demand for cheap labour resulted in periodic influxes of economic migrants to the country. While these migrants were valued for their positive impact on the workforce, once they were no longer needed, heavy-handed and prejudicial actions were sometimes taken against targeted ethnic groups (Wright, 2013). These are exemplified through the ‘poll tax’ of the late 1800s, which was designed to severely restrict Chinese immigration to the country (Liu, 2007) and the Dawn Raids conducted against Samoan visa overstayers in the 1970s and 1980s (Misatauveve, 2005). More recently, a 2007 survey of 1,118 New Zealanders (70% NZ Europeans) found that almost half (47%) of respondents believed that the recent influx of Asian immigrants was changing New Zealand in undesirable ways, and a further 57% believed that the number of immigrants should be reduced (Spoonley, Gendall, & Trlin, 2007). Despite past actions and some current sentiments, other contemporary research has found conflicting evidence indicating that New Zealanders possess more positive attitudes towards migrants and ethnic diversity.

Based on their survey of 2,020 New Zealanders (70.4% NZ European), Ward and Masgoret (2008) found that New Zealanders displayed a high endorsement of multiculturalism (i.e., both accepting and valuing cultural diversity) and low levels of perceived threat from immigration and recent migrants. Cultural distance, however, did impact how favourable immigrants were perceived. New Zealanders preferred migrants from culturally similar locations (e.g., Great Britain and Australia) over those coming from other English speaking locations (e.g., South Africa) and even more so than migrants from non-English speaking countries (e.g., Somalia and China). By analysing the same data as the previous study in conjunction with longitudinal and census data Ward, Masgoret, and

Vauclair (2011) further identified that more positive attitudes towards migrants were found “among women, young people, people with higher levels of education, and people who are overseas-born” (p. vi). Additionally, while positive attitudes towards migrants increased with population density, at the extreme end of diversity found in the Auckland region (the country’s largest and most diverse metropolitan area), increasing numbers were associated with negative attitudes.

A NZ European Perspective?

From the historical contexts of migration and intergroup relations, New Zealanders today not only live in an ethnically diverse nation, but appear to have developed a cultural identity that reflects this plurality – to a point. From the majority group perspective, a bicultural identity has taken root on a symbolic level, which may relate to a more open stance on ethnic diversity through greater endorsement of multiculturalism (e.g., Sibley, Liu, & Khan, 2008). From these findings, NZ Europeans may be less likely to perceive increasing diversity as a threat to their ingroup. However, with respect to more tangible aspects of diversity such as even distribution of resources or acute levels of ethnic diversity within a specific geographic area, NZ Europeans were more likely to view these as threatening and were associated with negative outgroup attitudes and higher endorsement of social dominance (e.g., Sibley et al., 2005).

While both of these arguments are drawn from insights in intergroup dynamics within New Zealand, neither provide strong enough evidence to form a sound prediction in how NZ Europeans will interpret *impending* change of such magnitude as the expected minority-majority shift to national demographics. Therefore, specific predictions are proposed for each individual study based on theoretical grounds and the accumulating evidence of the preceding

studies. However, at their core, these predictions all relate back to the central research question of this thesis.

Overview of Studies

As noted above, the main research question of the thesis is: How do majority group members in New Zealand perceive the impending loss of their ingroup population dominance? Three studies were conducted to investigate how NZ Europeans perceived a future when they are no longer the population majority of the country. Studies 1a and 1b of this research used an experimental design to examine the perceptions of NZ Europeans when comparing present-day demographics (where their ingroup is the population majority) with future projections (where their ingroup is no longer the population majority). These two experimental studies replicated the methods used in both Outten and colleagues (2012), who assessed participants' intergroup emotions relating to their ingroup and ethnic minorities in Canada and the US, and Craig and Richeson (2014a), who assessed racial bias by measuring participants' preferences for interacting with both their ingroup and other ethnic groups in the US. The purpose of this replication was twofold – to expand the existing literature on ethnic shifts to national demographics beyond Canada and the US, and to determine whether the demographic information manipulation utilised in previous work would be effective within the New Zealand context.

Once the efficacy of the experimental design was established, Study 2 utilised the demographic manipulation to explore the contextual expectations associated with future ethnic shifts in New Zealand. Rather than comparing present-day demographics with future projections, participants instead were asked to contemplate one of two future conditions: (1) A future where the demographics of the country were similar to 2016 and their ingroup retained population majority, or (2) a future where their ingroup was no longer the population majority of the country. Using Bain and colleagues' (2013) collective futures framework approach, Study 2 assessed both the participants' interpretations of future New Zealand

society and its people, and the behavioural and psychological impact relating to diversity in New Zealand in the present day.

Study 1a

Previous investigations in Canada and the US have indicated that impending ethnic shifts in a nation's population has a significant effect on current majority group members' perceptions of intergroup relations (Craig & Richeson, 2014a; Outten et al., 2012). As a key component of this research is grounded on both the theoretical and methodological approach of these works, it was prudent to first assess the efficacy of the planned experimental design within the New Zealand context. Therefore, the primary goal of this study was to replicate the methods utilised by Outten and colleagues (2012) and Craig and Richeson (2014a) to assess majority group member's perceptions of impending ethnic change in which they are no longer the population majority of their country. For an overview of replications and an assessment of the replication quality of Study 1a see Appendix A.

This study was approved by the School of Psychology Human Ethics Committee under delegated authority of the Human Ethics Committee of the Victoria University of Wellington (reference number: 23852). Participants who identify as NZ European took part in an online experimental survey where they reviewed material outlining either the current population demographics of New Zealand that highlighted their position as population majority, or a future projection set in the year 2063 which emphasised that they would no longer be the population majority. After reading the material, all participants responded to the same self-report measures for intergroup emotions and racial bias for their ingroup and minority groups in the country. Based on previous research findings (Craig & Richeson, 2014a; Outten et al., 2012), it was predicted that NZ Europeans who reviewed the future

projection where they were no longer the population majority would feel more negative emotions towards minorities and hold greater racial ingroup biases.

Method

Participants. Originally 136 participants took part in the study, however, 16 participants were identified to have responded incorrectly to an attention check item imbedded in the racial bias scale and one individual was identified to be an outlier (i.e., the participant had response values greater than 1.5 times the interquartile range; Tukey, 1977)¹. These participants were excluded prior to conducting the main analysis. The final sample for Study 1a included 119 New Zealand citizens. Fifty-seven of the participants were male (48%), 61 were female, and one participant did not specify their gender. All participants were born in New Zealand and ethnically identify as NZ Europeans. Participants' ages ranged from 18 to 66 years old ($M = 33.85$, $SD = 12.21$). The participants were recruited through online and physical advertisements, email invitation, and direct face-to-face requests.

Procedure. Using Qualtrics online software, a survey was created which provided demographic information of New Zealand followed by questions pertaining to the information provided and in relation to participants' perceptions of different ethnic groups in New Zealand. The survey began with general information about the study and a request for informed consent to participate. The study required that all questions be answered, necessitating forced responses, but participants were informed that they could quit at any point during the survey. If an individual agreed to participate, they then answered general demographic information questions (i.e., age, gender, ethnicity, and place of birth) before proceeding to the next portion of the survey.

¹ The outlying participant in Study 1a was removed to remain consistent with Craig and Richeson (2014a) using the same exclusion criteria based on Tukey (1977).

In the second section, participants read an article describing New Zealand's demography. The article included a pie chart that divided the ethnic breakdown of New Zealand into two groups: *European New Zealander* and a combined group of all minorities together titled *All ethnic minorities*. Instructions on the screen informed participants that they should pay close attention to the information as they would be asked questions about it later. To further ensure that participants had sufficient time to review the information, the button to linking to the next page was not made available until a timer set to 50 seconds had expired.

After reviewing the article, participants responded to a short series of questions about the information to determine if they understood the purpose of the article. Once completed, participants responded to a battery of individual difference measures relating to their ingroup (i.e., NZ Europeans) and ethnic minorities in New Zealand. Once the survey was completed, the participants were thanked for their participation and provided information on the purpose of the research and additional information based on existing research on perception towards changing national demographics.

Materials and measures.

Demographic information manipulation. Participants were randomly assigned to either a present-day condition (participants reviewed an article outlining current demographic information in New Zealand) or a future condition (participants reviewed future projections of New Zealand's demographic breakdown in the year 2063). The present-day condition article, titled "Statistics New Zealand Releases New Estimates of the Nation's Population by Ethnicity", outlined the current demographic proportions based on data from Statistics New Zealand (2014) in which NZ Europeans were the majority group of the country. The article read:

Statistics New Zealand has recently released its annual estimates of the current national population. These annual estimates give information about the resident population broken down by age, sex, and ethnicity.

According to the new estimates, Kiwis who identify themselves as European New Zealanders comprise roughly 68% of the nation's population. The remaining 32% of the population is split between Māori (14%), Pacific (7%), Asian (11%), and all other ethnic categories (1%).

The latest figures are estimated from Statistics New Zealand's 2013 annual census. The census, which is conducted every five years, provides government and communities current information needed to plan investments and services.

Mark Mather, a demographer with Statistics New Zealand explains, "The census helps us keep pace with the nation's ever-increasing demands for timely and relevant data about population characteristics. This information has long-lasting value for policy and decision-making in areas ranging from the private sector to the national and local governments."

2016 ESTIMATED NEW ZEALAND POPULATION BY ETHNICITY

Source: Statistics New Zealand

The article in the future condition was titled, "In a Generation, Ethnic Minorities May Be New Zealand's Majority", and highlighted that by the year 2063, minorities would outnumber the former NZ European majority. The article read:

Statistics New Zealand has recently released its annual projections for the national population. According to these projections, ethnic and racial minorities will comprise a majority of the nation's population in a little more than a generation, a transformation that is occurring much faster than anticipated just a few years ago.

The projections calculate that by 2063, New Zealanders who identify themselves as Māori, Asian, Pacific, Middle Eastern, Latin American, or African will together outnumber European New Zealanders.

One major contributor to this shift comes from the nation's open immigration policy. The number of new migrants, especially from Asian countries such as China, India, and the Philippines, has risen sharply over the past several years and is expected to continue in the foreseeable future. Another significant contributor to the projected ethnic shift comes from higher birthrates among racial and ethnic minorities. Māori

and Pacific population growth is expected to increase while the number of babies born to European New Zealand mothers is projected to decrease.

Mark Mather, a demographer with Statistics New Zealand explains, “This information has long-lasting value for policy and decision-making in areas ranging from the private sector to national and local governments. No other country has experienced such rapid ethnic change. What’s happening now in terms of increasing ethnic diversity is unprecedented.”

2063 PROJECTED NEW ZEALAND POPULATION BY ETHNICITY

In both cases, after reading the news article participants were asked several questions on purpose of the article (e.g., “What was the projected proportion of all ethnic minorities highlighted in the article?”) before continuing on to the survey measures.

Assessment of intergroup emotions. Following the experimental manipulation and article questions, participants completed the Assessment of Intergroup Emotions (Outten et al., 2012). Participants were asked to rate the extent to which they felt the intergroup emotions of *anger* (i.e., angry, annoyed, resentful), *fear* (i.e., fearful, scared, frightened), and *sympathy* (i.e., pity, sympathetic, compassionate) towards both their NZ European ingroup and towards all minorities in New Zealand as a collective group. Participants were presented the question, “To what extent does this information make you feel the following emotion towards [NZ Europeans / ethnic minorities?]”, followed by the nine intergroup emotion items presented in a randomised order. Responses for all items were scored on an 11-point scale anchored by 1 (*not at all*) to 11 (*completely*). Emotion items were grouped according to their target ethnic group and by specific emotion (i.e., anger, fear, and sympathy). Reliability coefficients for emotions towards the NZ European (anger, $\alpha = .92$; fear, $\alpha = .97$; sympathy, α

= .85), emotions towards minorities (anger, $\alpha = .94$; fear, $\alpha = .97$; sympathy, $\alpha = .82$) displayed satisfactory levels of internal consistency. These groupings were then averaged to create a mean score for emotions towards their NZ European ingroup and for emotions towards minorities.

Racial bias. Next, the Evaluative Bias Scale (Wolsko, Park, & Judd, 2006) was used to assess racial bias. The scale contains six items and measures the participants' preferences for engaging within their own ethnic group and openness to engaging with other ethnic groups. Items include both negative, "It would bother me if my children married someone from a different ethnic background." and positive views towards inter-ethnic interaction, "I would be completely comfortable in a social setting (such as a dance club or bar) where there were very few people from my ethnic group." The items were scored on a 7-point scale anchored by 1 (*strongly disagree*) to 7 (*strongly agree*). One additional question was added to this scale that was specific to the New Zealand context, "I support policies promoting more immigration to New Zealand." This item, along with those that denoted an openness to engaging with other ethnic groups, were reverse coded so lower scores indicated lower levels of ingroup biases ($\alpha = .84$). The items were averaged, creating a mean score for racial bias. During the survey, all items were presented to participants in a randomised order.

Attention check item. In addition to the questions that assessed whether the content of the article was understood by the participants, there was one item embedded within the racial bias scale that was used to assess whether participants were paying attention as they filled out the survey. The item explicitly asked participants to - "Please indicate '*Moderately agree*' as your response to this question". By including this question, participants who may have been randomly selecting responses would be more readily identifiable.

Results

Intergroup emotions. To test for effects of the experimental manipulation on intergroup emotions of NZ Europeans towards their own ingroup and minorities, three mixed model analyses of variance (ANOVAs) were conducted – one for each identified emotion of anger, fear and sympathy². For the analysis, experimental condition (present-day or 2063) was the between-subjects factor and the target group of the emotion (NZ Europeans or minorities) was the within-subjects factor. No significant main effects were found for any of the three emotions. A significant interaction between the experimental condition and the target group was found for sympathy $F(1, 117) = 11.16, p = .001, \eta^2_p = .09$, but not for anger, $F(1, 117) = 2.37, p = .13, \eta^2_p = .02$; or fear, $F(1, 117) = 0.19, p = .67, \eta^2_p = .00$. From this result, post hoc analyses were conducted to assess for differences in participants' feelings of sympathy towards NZ Europeans and minorities.

Two univariate ANOVAs were conducted, one for each target group (NZ Europeans and minorities) which compared participants' feelings of sympathy between the present-day and future time conditions. Sympathy towards NZ Europeans was marginally significant between experimental conditions $F(1, 117) = 3.74, p = .06, \eta^2_p = .03$. Participants were more sympathetic towards their ingroup in the future condition ($M = 3.94, SD = 2.49$) than in the present-day condition ($M = 2.14, SD = 1.78$). For minorities, no significant differences were identified $F(1, 117) = 2.08, p = .15, \eta^2_p = .02$.

Given the exploratory nature of Study 1a, complementing analyses were run to further explore the findings. First, paired samples *t*-tests were conducted to assess for mean

² The analysis of intergroup emotions were replicated from the steps outlined by Outten and colleagues (2012). Otherwise, a multiple analysis of variance (MANOVA) would have been conducted to test for general effect prior to running the three mixed model ANOVAs. For methodological completeness, a MANOVA was conducted with the experimental condition as the predictor variable and the six intergroup emotion items as outcome variables. The interaction between the experimental condition and intergroup emotions was significant $F(6, 112) = 2.90, p < .05$; Wilk's $\Lambda = 0.87, \eta^2_p = .14$.

differences in emotion within each experimental condition. Of the emotions, only sympathy in the present-day condition was found to be significantly different between minorities and NZ Europeans $t(48) = 3.37, p < .01$, Cohen's $d = .48$ with participants being more sympathetic towards minorities ($M = 3.21, SD = 2.76$) than NZ Europeans ($M = 2.14, SD = 1.78$).

Next, each of the nine emotion items were separately assessed for experimental effects between the two conditions. Due to unequal group sizes (present-day condition [$n = 49$], future condition [$n = 70$]) Welch's t -tests were used to compare groups (see Kohr & Games, 1974). Three items were found to be significantly different. Pity towards ethnic minorities was significantly higher in the present-day condition ($M = 2.57, SD = 2.84$) than the future condition ($M = 1.70, SD = 1.48$), $t(66.23) = 1.97, p = .05$, Cohen's $d = .38$. Pity towards NZ Europeans was significantly lower in the present-day condition ($M = 1.80, SD = 1.80$) than the future condition ($M = 2.71, SD = 2.56$), $t(116.99) = 2.30, p < .05$, Cohen's $d = .40$. Finally, sympathy towards NZ Europeans was also significantly lower in the present-day condition ($M = 2.04, SD = 2.10$) than the future condition ($M = 3.07, SD = 2.74$), $t(115.94) = 2.32, p < .05$, Cohen's $d = .42$.

Racial bias. Welch's t -test was conducted to compare the mean score of racial bias between the present-day and future conditions. No significant differences for racial bias existed between the two experimental conditions $t(103.29) = .72, p = .47$, Cohen's $d = .14$ ³. In the EBS, a score of 4 is the mid-point of the scale and higher numbers are an indication of greater ingroup biases. One-sample t -test indicated that participants in both the present-day condition $t(48) = -5.80, p < .001$, Cohen's $d = -.83$ ($M = 3.06, SD = 1.14$) and the future condition $t(69) = -8.08, p < .001$, Cohen's $d = -.97$ ($M = 2.90, SD = 1.14$) displayed a slight

³ An additional analysis was run to examine the mean score of the EBS measure without the additional New Zealand specific item. The results for this measure were the same when the item was excluded.

and significant preference for interactions with minority groups regardless of the experimental condition. Complementing Welch's *t*-tests were run for each of the individual racial bias item to assess for experimental effects; however, no significant differences were found.

Discussion

The purpose of Study 1a was to replicate and assess the efficacy of an experimental design used by researchers in Canada and the US within the New Zealand context prior to applying the method in the primary study of this research. NZ Europeans were shown information depicting either present-day demographics or future projections where they were no longer the population majority of the country. The two participant groups were then compared to determine if exposure to impending ethnic shift information differentially impacted perceptions toward NZ Europeans and minorities. In this discussion, the findings of the study are reviewed first, followed by the highlights from the assessment of replication quality, and is concluded with considerations for Study 1b.

Comparison between New Zealand, Canadian, and US studies. Using the same experimental manipulation as the Canadian and US studies, NZ Europeans' perceptions towards losing the population majority of their country were assessed. Based on the North American research, it was predicted that NZ Europeans who reviewed the ethnic shift information would feel more negative emotions towards minorities and display greater interaction preferences towards their ingroup. For the New Zealand participants, however, neither of these predictions held true and only feelings of sympathy towards their own ingroup was significantly different between the present-day and future projection conditions.

While this result converges with some aspects of the previous studies on minority-majority shifts (i.e., self-directed sympathy arises when groups are faced with losing their

majority; Outten et al., 2012), the absence of negative emotions or ingroup biases⁴ was unexpected and particularly surprising. These preliminary findings indicate that majority group members in New Zealand interpret the loss of population majority differently than those from Canada and the US. However, such a conclusion would be premature without conducting an assessment of the replication quality. Until potentially confounding replication issues have been identified and addressed, methodological errors cannot be ruled out as an alternative explanation for these differences.

Replication overview and implications for Study 1b. Following elements of best practice outlined by Brandt and colleagues (2014), the conceptual replication of the demographic shift manipulation was examined for its level of closeness to original studies. A detailed analysis of this assessment can be found in Appendix A. From the assessment it was concluded that, while the implementation of the study design held closely to the methods of the previous researchers, variations in recruitment method and subject pool somewhat limit the interpretability of the results. Additionally, it was found that the sample size was too small to capture potentially small yet significant effects associated with negative emotions. Based on these considerations, a second conceptual replication (Study 1b) was required to address the issues identified in Study 1a. By including this study, greater insight into the reliability of the experimental design would be established and the findings would act as a second comparison point for minority-majority shift research in New Zealand.

Study 1b

Similar to the first study, Study 1b again utilised the demographic shift manipulation to assess differences in NZ Europeans' perceptions of losing population majority in New

⁴ No significant differences in racial bias were found between experimental groups when using either a modified version or the original EBS measure.

Zealand⁵. However, Study 1b differed from the first study in three ways. The first two differences related to replication considerations; the number of participants increased from the previous study, and participants were taken from a subject pool that was more similar to that of previous research. The third, and largest difference, resulted from the inclusion of an additional measure – a feelings thermometer which assessed participants’ attitudes towards ethnic groups in New Zealand. A commonly used measure in social science (Nelson, 2011), a feelings thermometer measures how positively, or *warm*, a respondent feels towards a specified target (e.g., ethnic group, beliefs, policies). The higher the rating, the stronger a participant holds positive views towards the item in question.

The deviation from the initial replication was justified for two reasons. First, the thermometer had already been used in conjunction with the demographic shift manipulation in both Outten and colleagues’ (2012) and Craig and Richeson’s (2014a) studies⁶. Second, the tool had previously been identified as a successful measure for attitudes towards ethnic groups in New Zealand (Sibley, 2017). By including this tool and rectifying issues related to the replication analysis, potential differences that arise may be more readily attributed to culture-specific differences in perceptions towards impending national demographic change in New Zealand.

Though the findings of Study 1a suggested there may be perceptual differences towards the expected minority-majority shift, the predictions from Study 1a were retained due to the possibility that the differences arose from methodological issues. NZ Europeans who were exposed to projections indicating their loss of population majority were predicted to feel more negative emotions towards minorities, feel less warm towards specific minority

⁵ This study was approved by the School of Psychology Human Ethics Committee under delegated authority of the Human Ethics Committee of the Victoria University of Wellington (reference number: 23852).

⁶ The replication of this research is based on Study 1 of Craig and Richeson (2014a) and Study 1 of Outten et al. (2012). The feelings thermometer was used in Study 2 of Outten and colleagues (2012) and Study 3 of Craig and Richeson (2014a).

groups, and hold greater racial ingroup biases than those in the present-day demographic condition.

Method

Participants. Of the 164 participants, 19 responded incorrectly to the attention check item and were excluded from the analysis⁷. The final sample included 145 New Zealand citizens (present-day condition [$n = 72$], future condition [$n = 73$]). Twenty of the participants were male (14%) and 125 were female. All participants were born in New Zealand and identified as NZ European. Participants' ages ranged from 18 to 27 years old ($M = 18.65$, $SD = 1.64$). Participants were first-year psychology students recruited through the Victoria University of Wellington's Introduction to Psychology Research Programme and were invited to complete an online survey in exchange for course credit.

Procedure. The procedure for Study 1b was identical to Study 1a of this research with two minor exceptions. General information about psychological research was added to the preliminary information section of the survey and greater details on relevant psychological theories were included in the participant debriefing sheet. This information is added to provide fledgling psychology students greater insight into both the theory and practice of psychological research.

Participants reviewed general information about the study, provided informed consent, and completed an online-survey which contained demographic information of New Zealand and a battery of measures. The measures captured participants' perceptions towards their own ingroup and the other ethnic groups living in New Zealand based on the

⁷ The analyses was re-run with the excluded participants and significant differences were identified. With the additional participants the mixed model ANOVA for fear identified a significant interaction between experimental condition and anger. Post hoc analysis revealed that anger towards ethnic minorities was significantly different between the present-day and future conditions.

demographic information they had reviewed. After the assessment, participants were debriefed and thanked for their participation.

Materials and measures.

Demographic information manipulation. Participants were randomly assigned to either the present-day condition (current demographics of New Zealand with the NZ European majority) or the future condition (projected minority-majority in the year 2063). After reviewing the information presented in the article (the same used in Study 1a), all participants then answered the same survey questions, beginning with an assessment of intergroup emotions, followed by a racial bias scale, and ending with a feelings thermometer. Within each measure, survey items were presented to participants in a randomised order.

Intergroup emotions. Outten and colleagues (2012) Assessment of Intergroup Emotion was again used to measure participants' feelings of anger, fear, and sympathy as they related to their NZ European ingroup and to all other minorities (grouped as a single collective). Reliability coefficients for emotions towards NZ Europeans (anger, $\alpha = .88$; fear, $\alpha = .93$; sympathy, $\alpha = .83$), emotions towards minorities (anger, $\alpha = .86$; fear, $\alpha = .93$; sympathy, $\alpha = .85$) displayed satisfactory levels of internal consistency. The items were sorted by emotion and ethnic grouping and were averaged to create a mean score for emotions towards NZ European and for emotions towards minorities with higher scores indicating stronger emotional response.

Racial bias and attention check item. The six-item Evaluative Bias Scale (Wolsko et al., 2006) plus the additional immigration item was used to assess for participants' racial biases ($\alpha = .80$). Items were reversed coded so lower scores indicated lower ingroup bias. A mean score for racial bias was calculated and the attention-check item was again embedded within the racial bias scale to check for participant attentiveness.

Attitudes towards specific minority groups. A feelings thermometer was used to assess attitudes towards the ethnic groups of New Zealand. The design and ethnic groupings utilised in the thermometer were based on the well-established measure used in the ongoing longitudinal New Zealand Attitude and Values Study (Sibley, 2017). Adapted for this study, the survey tool contained nine items relating to specific ethnic groups in New Zealand (NZ Europeans, Māori, Pacific Islanders, Indians, Chinese, and Arabs) and generalised groupings (*Asians in general* and *immigrants in general*). To assess warmth towards each ethnic grouping participants were asked, “Please rate your feelings of WARMTH towards the following groups using the ‘feeling thermometer scale’ for each group”. Each item was scored on a 7-point scale anchored by 1 (*Feel LEAST WARM towards this group*) to 7 (*Feel MOST WARM towards this group*). With a Cronbach alpha of .94, the scale displayed satisfactory levels of internal consistency.

Results

Intergroup emotions. Using three mixed model ANOVAs, the effects of experimental condition on the intergroup emotions (i.e., anger, fear, and sympathy) of NZ Europeans towards their own ingroup and minorities were analysed⁸. Again, experimental condition (present-day or 2063) was the between-subjects factor and the target group of the emotion (NZ Europeans or minorities) was the within-subjects factor. For all three models, a significant main effect for target group was revealed: anger $F(1, 143) = 5.53, p < .05, \eta^2_p = .04$, fear $F(1, 143) = 13.02, p < .001, \eta^2_p = .08$, and sympathy $F(1, 143) = 52.89, p < .001, \eta^2_p = .27$. This was qualified by a marginally significant interaction between experimental condition and target group for anger $F(1, 143) = 3.63, p = .06, \eta^2_p = .03$ and a significant

⁸ Similar to Study 1a, a MANOVA was conducted with the experimental condition as the predictor variable and the six intergroup emotion items as outcome variables prior to running the mixed model ANOVAs. The interaction between the experimental condition and intergroup emotions was significant $F(6, 138) = 6.11, p < .001$; Wilk's $\Lambda = 0.79, \eta^2_p = .21$.

interaction for sympathy $F(1, 143) = 30.34, p < .001, \eta^2_p = .18$. There was no significant interaction for fear $F(1, 143) = .26, p = .61, \eta^2_p = .00$. Post hoc analyses were conducted examining feelings of anger and sympathy to determine if there were differences in participants' emotions towards NZ Europeans versus emotions felt towards ethnic minorities.

Participants were significantly more sympathetic towards their NZ European ingroup in the future condition ($M = 3.28, SD = 2.12$) than in the present-day condition ($M = 2.09, SD = 1.59$), $F(1, 143) = 14.44, p < .001, \eta^2_p = .09$ and were significantly less sympathetic towards minorities in the future ($M = 3.59, SD = 2.43$) than in the present-day condition ($M = 4.38, SD = 2.41$), $F(1, 143) = 3.78, p = .05, \eta^2_p = .03$. For feelings of anger, only anger towards minorities approached significance, $F(1, 143) = 3.12, p = .08, \eta^2_p = .02$, as participants displayed more anger in the future condition ($M = 2.73, SD = 2.07$) than in the present-day condition ($M = 2.18, SD = 1.69$).

Complementing these results, *t*-tests were run to further explore for experimental effects between and within experimental conditions. First, paired samples *t*-tests were conducted to assess mean differences in emotion within each experimental condition resulting in four significant results – two in the present-day and two in the future condition. Participants in the present-day condition felt more sympathy towards minorities ($M = 4.38, SD = 2.41$) than NZ Europeans ($M = 2.09, SD = 1.59$), $t(71) = 9.48, p < .001$, Cohen's $d = 1.12$, and more fear of minorities ($M = 2.26, SD = 1.86$) than of NZ Europeans ($M = 1.77, SD = 1.40$), $t(71) = 3.13, p < .01$, Cohen's $d = .30$. In contrast, participants in the future condition felt more anger towards minorities ($M = 2.73, SD = 2.07$) than NZ Europeans ($M = 2.20, SD = 1.71$), $t(72) = 2.77, p < .01$, Cohen's $d = .28$, and more fear of minorities ($M = 2.53, SD = 2.00$) than of NZ Europeans ($M = 2.16, SD = 1.65$), $t(72) = 2.06, p < .05$, Cohen's $d = .20$.

Next, each of the nine emotion items were separately assessed for experimental effects between the two time conditions using Welch's *t*-tests. Six significant differences were identified. For emotions towards minorities: annoyed was significantly lower in the present-day condition ($M = 2.29, SD = 2.00$) than the future condition ($M = 3.16, SD = 2.59$), $t(135.39) = 2.27, p < .05$, Cohen's $d = .38$, sympathy was significantly higher in the present-day condition ($M = 4.60, SD = 2.73$) than the future condition ($M = 3.68, SD = 2.87$), $t(142.83) = 1.96, p = .05$, Cohen's $d = .34$, and compassionate was also significantly higher in the present-day condition ($M = 4.79, SD = 2.94$) than the future condition ($M = 3.84, SD = 2.86$), $t(142.78) = 1.99, p < .05$, Cohen's $d = .33$.

For emotions towards NZ Europeans, all three sympathy emotions were different between experimental conditions. Pity was significantly lower in the present-day condition ($M = 1.75, SD = 1.48$) than the future condition ($M = 2.60, SD = 2.01$), $t(132.29) = 2.91, p < .01$, Cohen's $d = .48$, sympathy was significantly lower in the present-day condition ($M = 1.99, SD = 1.80$) than the future condition ($M = 3.48, SD = 2.62$), $t(128.02) = 4.01, p < .001$, Cohen's $d = .66$, and compassionate was significantly lower in the present-day condition ($M = 2.54, SD = 2.40$) than the future condition ($M = 3.75, SD = 2.63$), $t(142.08) = 2.90, p < .01$, Cohen's $d = .48$.

Racial bias. Welch's *t*-test was conducted to compare the mean score of racial bias between the present-day and future time conditions. Similar to Study 1a, participants in the present-day condition were not significantly different from those in the future condition for ingroup favouring racial biases $t(139.42) = .95, p = .34, d = .16^9$. Participants in both the present-day condition $t(71) = -14.74, p < .001$, Cohen's $d = -1.74$ ($M = 2.48, SD = .88$) and the future condition $t(72) = -11.20, p < .001$, Cohen's $d = -1.31$ ($M = 2.63, SD = 1.04$)

⁹ Again, an additional analysis was run to examine the mean score of the EBS measure without the additional New Zealand specific item. The results for this measure were the same when the item was excluded.

indicated a significant and slight preference for interacting with minority groups regardless of the time condition. Again, *t*-tests were run for each racial bias item separately to assess for experimental effects, but no significant differences were found.

Attitudes towards specific minority groups. An initial multivariate ANOVA was conducted with experimental condition as the independent variable and warmth ratings for the eight ethnic groupings as dependent variables. There was no significant difference between experimental condition based on ethnic grouping, $F(8, 135) = .49, p = .86$; Wilk's $\Lambda = 0.97, \eta^2_p = .03$. Participants' scores for attitudes towards the ethnic groups of New Zealand as measured by the feelings thermometer are presented in Figure 3¹⁰.

Figure 3. NZ Europeans' feelings of warmth towards specific ethnic groups in New Zealand by experimental condition in Study 1b.

¹⁰For the full list of means and standard deviations of Study 1b's feelings thermometer see Table 8 of Appendix B.

While the primary analysis of attitudes yielded no significant differences, complementing analyses were run to examine the relationships between the different ethnic groupings within each of the experimental conditions. Using paired-samples *t*-tests, Table 1 shows that participants felt consistently and significantly more positive towards their own NZ European ingroup than all other ethnicities regardless of experimental condition. Feelings of warmth towards Māori and Pacific Islanders were significantly higher than the remaining ethnic groupings, but not significantly different than each other in both the present-day and future condition. Next, immigrants in general were liked more than the remaining ethnicities in both time conditions. There were no differences in warmth towards Asians in general, Chinese, Indians, and Arabs with two key exceptions. In the present condition, feelings of warmth towards Asians in general and Indians were significantly higher than Arabs. However, in the future condition, neither ethnic group differed significantly from warmth towards Arabs.

Table 1

Mean Difference Comparison for Warmth Between Specific Ethnic Groups in New Zealand

	1.	2.	3.	4.	5.	6.	7.	8.
1. NZ Europeans	-	.88***	.82***	1.44***	1.90***	2.00***	1.99***	2.19***
2. Māori	.83***	-	.06	.60**	1.01***	1.12***	1.11***	1.32***
3. Pacific Islanders	1.06***	.22	-	.63***	1.04***	1.15***	1.17***	1.38***
4. Immigrants in general	1.53***	.69**	.47**	-	.42**	.49**	.47**	.68***
5. Asians in general	1.96***	1.13***	.90***	.43**	-	.11	.10	.30
6. Chinese	2.06***	1.22***	1.00***	.53***	.10	-	.01	.19
7. Indians	1.93***	1.10***	.88***	.40**	.03	.13	-	.21
8. Arabs	2.19***	1.36***	1.14***	.67***	.24*	.14	.26**	-

Notes. Mean difference below the dash denote participants in the present-day condition and mean differences above the dash denote participants in the future condition.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Discussion

Building on the foundation established in the first study, Study 1b again tested the demographic shift manipulation with majority group members in New Zealand. Concerns raised in the first replication were addressed in this study, strengthening the likelihood that outcome effects were associated with cultural specific differences rather than irregularities in the replication process. In addition, the study provided a second comparison point for majority group perceptions of an impending ethnic shift in New Zealand. With the unexpected results from Study 1a, the outcome of this study helped to establish whether the perceptual differences represent a more generalisable view held by majority group members in New Zealand, or a potentially anomalous finding due to methodological error.

Perceptions of demographic change and implications for Study 2. When taken together, Studies 1a and 1b indicate that, for majority group members in New Zealand, impending loss of population majority has psychological ramifications, and these differ from comparable samples in Canada and the US (Craig & Richeson, 2012; Outten et al., 2012). In the North American studies, a minority-majority future was associated with higher levels of negative emotions and ingroup biases. Contrary to predictions based on these studies, no mean differences in racial bias or negative emotions were identified. For NZ Europeans in Study 1b, exposure to the ethnic shift condition only elicited a significant difference in the mean score for sympathy-based emotions. Those in the minority-majority condition felt higher levels of sympathy towards their own ingroup and lower levels of sympathy towards minorities compared to those in the present-day condition. Moreover, analysis of the feelings thermometer provided further evidence of a potential perceptual difference toward a minority-majority future as warmth towards ethnic groups did not differ between experimental conditions. However, though no between group differences were evident, NZ Europeans did significantly differ in warmth towards ethnic groups in the country. This

finding hints at a possible stable hierarchy of outgroup preference which is consistent with past research (Ward & Masgoret, 2008).

With greater confidence in the findings from Studies 1a and 1b, it was important to examine factors which contribute to this divergence from past findings. One way this can be achieved is by examining majority group members' contextual expectations of this anticipated minority-majority shift. This idea summarises the basic premise of Study 2 – the final study of this research.

Study 2

While the future is unknown, people are not limited to planning for daily survival alone and often act to influencing events yet to come. For example, parents who envision their child becoming successful adults may move to safer neighbourhoods or those with better educational opportunities. To avert global warming, nations may enact policies which aim to cut carbon dioxide emissions. Depending on expectations for the future, people are moved to action in the present. Building on the foundations established in the first two studies, Study 2 once again drew comparisons between two demographic conditions. However, beyond investigating group differences, this study also examined how future change impacts present-day attitudes and action intentions. To achieve this goal, the demographic shift manipulation of the previous studies was used in conjunction with the collective futures framework (Bain et al. 2013)¹¹.

With empirical evidence supporting the efficacy of the model ranging from political policies to climate change (Bain et al., 2013; Bain et al., 2016; Milfont et al., 2014), the collective futures framework has already proven to be a useful tool in linking perceptions of

¹¹ This study was approved by the School of Psychology Human Ethics Committee under delegated authority of the Human Ethics Committee of the Victoria University of Wellington (reference number: 25095).

the future with present-day actions. However, Study 2 extends the utility of the framework by incorporating a novel experimental component. By placing participants in one of two different demographic future conditions (NZ European-majority vs. a minority-majority), we aimed to identify potential differences in perceptions or action intentions between scenarios. Combining the benefits of the collective futures framework with the experimental design and measures carried over from the previous two studies, Study 2 held the potential to uncover unique insights into how individuals interpret and respond to expectations for the future.

As this study was the first to attempt to use the collective futures framework in an experimental manipulation, no specific predictions were made relating to this dimension of the study. However, based on the compounding evidence that NZ Europeans may not perceive a minority-majority future as negatively as in previous studies conducted in North America, it was predicted that participants in the minority-majority condition will only significantly differ from those in the NZ European-majority condition for sympathy-based emotions (higher towards NZ Europeans in European-majority condition). No significant differences in negative emotions, attitudes, or behavioural intention associated with diversity were expected.

Method

Participants. Of the 288 individuals who took part in the study, 32 responded incorrectly to the attention check item and were excluded from the analysis. The final sample included 256 New Zealand citizens (NZ European-majority condition [$n = 126$], minority-majority condition [$n = 130$]). Sixty-seven of the participants were male (26%), 188 were female, and one participant did not indicate their gender. All participants were born in New Zealand and identified as NZ European. Participants' age ranged from 18 to 64 years old ($M = 19.13$, $SD = 3.11$). Participants were first-year psychology students recruited through the

Victoria University of Wellington's Introduction to Psychology Research Programme and completed an online survey in exchange for course credit.

Procedure. The procedure for Study 2 was similar to the first two studies.

Participants reviewed general information about the study, provided informed consent, and completed an online-survey which contained demographic information of New Zealand and a battery of measures. The measures included both open-ended questions and survey questions which required forced responses. The items measured either participants' perceptions or behaviours towards their own ingroup or the other ethnic groups living in New Zealand based on the demographic information they had reviewed. After the assessment participants were debriefed and thanked for their participation.

Materials and measures.

Demographic information manipulation. Participants were randomly assigned to one of two experimental conditions related to the future of New Zealand: (1) a NZ European-majority condition (NZ Europeans maintained population majority in 2063) or a minority-majority condition (NZ Europeans are no longer the population majority in 2063). In both conditions, participants were presented with a news article and two pie charts, one with the ethnic demographics of New Zealand in 2016 and the other a projection for the year 2063. In all charts, NZ Europeans were depicted in blue while ethnic minorities were displayed in a single shade of red. This presentation format differed from the previous two studies which presented a single chart (either present-day or future demographics) and distinguished ethnic groups by individual colours¹².

¹² While a divergence from Craig and Richeson (2014a), this formatting is in line with the methods employed by Outten and colleagues (2012) and was chosen due to its clear presentation of demographic change (2016 vs. 2063) and ethnic dichotomy (NZ Europeans vs. minorities).

The minority-majority condition utilised the same news article as in the previous two studies, however, a new graphic was included in Study 2. Figure 4 displays the pie charts which accompanied the minority-majority condition article. The 2016 chart displayed that NZ Europeans as population majority which reflects present-day proportions (Statistics New Zealand, 2014) while the 2063 graph indicated that NZ Europeans have become less than half of the population majority.

Figure 4. Demographic pie charts for the minority-majority condition article for Study 2.

The article for the NZ European-majority condition entitled, “Statistics New Zealand Predicts Stability in the New Zealand Population” outlined that projections based on an analysis by Statistics New Zealand indicated that the ethnic diversity of the country in the year 2063 would be similar to demographic proportions in the recent 2016 New Zealand census. The article read:

Statistics New Zealand has recently released its annual projections for the national population. According to these projections, the demographic composition of the nation will remain relatively stable over the next 50 years.

By 2063, it is estimated that Kiwis who identify themselves as European New Zealanders will comprise roughly 62% of the nation’s population. The remaining 39%

of the population will be split between Māori (15%), Pacific (9%), Asian (13%), and all other ethnic categories (1%).

The latest figures were calculated by analysing new data from Statistics New Zealand's 2016 annual Census. The census, which is conducted every five years, provides government and communities current information needed to plan investments and services. Mark Mather, a demographer with Statistics New Zealand explains, "The census helps us keep pace with the nation's ever-increasing demands or timely and relevant data about population characteristics. This information has long-lasting value for policy and decision-making in areas ranging from the private sector to the national and local governments."

Source: Statistics New Zealand

The NZ European-majority condition utilised the same 2016 graph as the minority-majority condition, but for the 2063 graph, NZ Europeans were shown to retain majority group status while all other ethnic minorities would account for 36% of the country's population.

After reviewing the information, participants answered a short series of questions to determine if they understood the purpose of the article. Once finished, participants were asked to reflect on the information and to imagine what New Zealand's society and inhabitants would be like in the year 2063. They were then prompted to describe their imagined future in two text boxes provided in the survey – one box for their description of New Zealand society and one box for the people of New Zealand. After this section, participants responded to a battery of measures.

The first measures related to New Zealand in 2063 and assessed participants' perceptions of New Zealand's society and inhabitants based on the future they had imagined in the previous section. After this section, participants answered questions about New Zealand in the present day relating to their behaviours, attitudes, perceptions, and emotions towards their ingroup and ethnic minorities in the country. The measures were presented to participants in the same order, but scale items were randomised within each measure. Once the survey was completed, the participants were thanked for their participation and provided information on the purpose of the research, the use and necessity of deception in the experimental design, and additional information over existing research on perception towards changing national demographics.

Collective futures dimensions. In line with the collective futures framework (Bain et al., 2013) participants answered a series of questions about the future of their society which was based on the experimental condition they were assigned. Participants assessed their imagined society in terms of dysfunction (e.g., disease) or development (e.g., scientific progress) and by the traits and values of its citizens. After reflecting on their imagined future society, participants were asked to compare these assessments with their perception of New Zealand in the present day.

Following a standard format, participants were prompted to reflect on a societal dimension then indicate how similar or different the future would be to the present day. For example, when contemplating the values of future New Zealanders, participants were asked, "Please rate how important the following values would be to New Zealanders in 2063 when compared to New Zealanders of today". The collective futures items for the dimensions were listed and participants responded on an 11-point scale (-5 = *much less common than in New Zealand society today*, 0 = *no different from New Zealand society today*, 5 = *much more common than in New Zealand society today*). Table 2 below includes all items used to assess

collective futures dimensions in the study. Keeping in line with previous research using the collective futures framework (e.g., Bain et al, 2013; Milfont et al., 2014), societal dysfunction and negatively termed personality traits (e.g., unfriendly and lazy) were reverse scored so positive scores indicated greater levels of development, benevolence, and competence and negative scores indicated greater dysfunction and social decline. It is important to note that this contrasts with the other scales used in Study 2 in which higher scores indicate increasingly negative perceptions (e.g., emotions and threat)¹³.

Table 2

Items of the Collective Futures Dimensions

Society	Traits	Values
Dysfunction	Benevolence	Conservation
Violent crime	Caring	Self-discipline
Poverty	Unfriendly	Family security
Disease	Warm	Respect for tradition
Pollution	Insensitive	Self-Transcendence
Theft	Considerate	Equality
Unemployment levels	Honest	Honesty
Development	Immoral	Social justice
Education levels	Sincere	Openness to Change
Volunteering	Trustworthy	Enjoying life
Extent of community groups	Unethical	Freedom
Extent of natural reserves	Competence	An exciting life
Economic development	Lazy	Self-Enhancement
Scientific progress	Competent	Pleasure
	Unskilled	Wealth
	Capable	Ambitious
	Assertive	

Supporting Diversity Scale. Following the collective futures measures, participants completed a 10-item measure which captured their willingness to engage in action that supported minority groups or diversity in New Zealand. Some items were adapted from the Environmental Citizenship scale (Milfont et al., 2014) and included examples such as, “I would boycott companies that have been shown to exploit ethnic minority groups”, while

¹³ Breaking from the thesis continuity, reliability coefficients for the measures used in Study 2 are reported in the Results section under the heading “Descriptive statistics for Study 2”.

others were newly created for this study and covered a spectrum of topics ranging from political (e.g., “Some Parliamentary seats should be reserved for underrepresented migrant ethnic groups”), educational (e.g., “To reflect increasing diversity, foreign language courses should be mandatory in all schools), or economy based (e.g., “It would be acceptable to increase taxes in order to fund new migrant settlement initiatives”).

While all items were grounded in real behavioural action intentions or acceptance of change, some items were in support of ideas or potentially impactful activities such as, “I would join a public demonstration or protest to support the cause of an ethnic minority group”, while others were grounded in concrete actions or changes, “I would accept changes to NZ public holidays to avoid religious affiliation (Easter and Christmas) or alternatively replace them with non-Christian alternatives (e.g., Eid-UI-Adha [the feast of sacrifice in Islam])”. These distinctions were made to reflect the abstract and concrete types of actions associated with the principle-implementation gap (Dixon et al., 2007; Sears et al., 1997) and Yogeeswaran and Dasgupta’s (2014) abstract and concrete multiculturalism. Responses for all items were scored on a 7-point scale anchored by 1 (*Strongly Disagree*) to 7 (*Strongly Agree*).

Racial bias and attention check item. The six-item Evaluative Bias Scale (Wolsko et al., 2006) was used to assess participants’ racial biases. The immigration question was not included in this section as attitudes toward governmental policy was covered in a different scale. Items were reversed coded so lower scores indicated lower ingroup bias. A mean score for racial bias was calculated and the attention-check item was again embedded within the scale.

Attitudes towards specific minority groups. The feelings thermometer used in Study 1b was again included to assess attitudes towards the specific ethnic groups in New Zealand.

These included NZ Europeans, Māori, Pacific Islanders, Chinese, and Arabs as well as the two more generalised groupings of ‘Asians in general’ and ‘immigrants in general’. Attitudes towards Indians was erroneously removed from the online scale and was not included in Study 2.

Intergroup threat. A nine-item measure of intergroup threat perception was added in Study 2. This scale captured more generalised beliefs about ethnic diversity, measuring the extent to which participants believe minorities threaten New Zealand society. These items were adapted from three existing scales: the Intergroup Threat Scale (Duckitt, 2006), the Perceived Threat Scale (Ward & Masgoret, 2008), and an unpublished measure of threat perception towards Muslims in New Zealand (Ward, n.d.). Items from three scales were utilised as no scale alone contained an adequate number of items that suited the specific context and phrasing of this particular study.

The primary objective of the scale was to measure realistic and symbolic threats associated with diversity (Stephan & Renfro, 2002). Therefore, the scale included four items measuring realistic threats (e.g., “I am afraid that some ethnic minorities make our society more dangerous for ordinary people”) and four items measuring symbolic threats (e.g., “Some ethnic minorities have values that are not compatible with New Zealand values”). In addition, one item measuring zero-sum beliefs (e.g., “The more political power minority groups obtain, the more difficult it is for New Zealanders already living here”) was also included in the measure. With a number of the Supporting Diversity Scale items directly (or indirectly) relating to politically based topics it was deemed important to capture participants’ endorsement of zero-sum beliefs (i.e., where resources gained by one group are proportionately lost by another group; Meegan, 2010) relating to political control.

The scale was balanced by including items which reflected positive views towards diversity or minorities – for example, one item was phrased, “Ethnic diversity helps to make our society safer and less dangerous”. Responses to the intergroup threat measure were scored on a 7-point scale anchored by 1 (*Strongly disagree*) to 7 (*Strongly agree*). The positive views toward diversity were reversed scored so that higher scores indicating greater perceptions of intergroup threat.

Ingroup benefit from diversity. After the intergroup threat perception scale, one item was included to assess the extent to which participants believed their ingroup benefitted from diversity. Participants were asked to provide a response to the statement, “My ethnic group will benefit from ethnic diversity in New Zealand”, on a 7-point scale anchored by 1 (*Strongly disagree*) to 7 (*Strongly agree*).

Intergroup emotions. The Assessment of Intergroup Emotion (Outten et al., 2012) was used to measure participants’ feelings of anger, fear, and sympathy as they related to NZ Europeans and towards all minorities which were grouped as a single collective. The items were sorted by emotion and ethnic grouping and were averaged to create mean scores for emotions towards NZ Europeans and for emotions towards minorities with higher scores indicating stronger emotional response.

Results

The purpose of Study 2 was to utilise the demographic shift manipulation to assess for differences in perceptions of future demographics in New Zealand. This was measured through both previously used scales as well as measures associated with the collective futures framework (Bain et al., 2013) and two new scales adapted from items of previously established measures. The results of this study begin with a factor analyses of the two new scales before continuing with reliability analyses of all measures used in this study. Breaking

from the survey continuity, analyses of the measures used in the previous studies (Evaluative Bias Scale, feelings thermometer, and Intergroup Emotion Scale) are presented next, followed by analyses of the two new scales and the collective futures dimensions. Finally, taking advantage of a key component of the collective futures framework, the collective futures dimensions are further explored by examining each experimental condition separately to assess for contextual differences in perceptions towards the future of New Zealand based on the demographic information presented.

Factor analysis. Factorability of the Supporting Diversity Scale and Intergroup Threat Scale were examined using the Kaiser-Meyer-Olkin measure for sampling adequacy and Bartlett's test of sphericity. Sampling adequacy for both scales were above the recommended value of .6 (both over .89) and both were significant for Bartlett's test of sphericity (Supporting Diversity Scale: $\chi^2(45) = 872.49, p < .001$, Intergroup Threat Scale: $\chi^2(36) = 956.67, p < .001$). In addition, all items were correlated above .3 with at least five of the other items indicating good factorability.

Supporting Diversity Scale. Due to the high inter-item correlations and exploratory nature and use of the Supporting Diversity Scale, a principal components analysis (PCA) was conducted to investigate patterns in the data. To determine the number of factors to retain for the scale, the Guttman-Kaiser criterion was considered (Guttman, 1954; Kaiser, 1960; Warne & Larsen, 2014) in addition to running parallel analysis utilising the techniques developed by O'Connor (2000). Under the Guttman-Kaiser criterion, a two-factor solution was identified as two constructs had eigenvalues over one with values levelling off after the second factor (eigenvalues: 4.53, 1.06, .85, .71). However, parallel analysis indicated a one-factor

solution¹⁴. Based on the more empirically stringent factor retaining methods of parallel analysis (see Franklin, Gibson, Robertson, Pohlmann, & Fralish, 1995; Zwick & Velicer, 1986), the one-factor solution was chosen resulting in a unidimensional measure of actions in support of diversity. As the scale displayed acceptable levels of internal reliability ($\alpha = .86$), scores from the 10-items were averaged to create a mean score with higher values indicating greater endorsement of pro-diversity type actions.

Intergroup Threat Scale. As the scale items were adapted from previously established measures which evaluated well-established theoretical constructs, a confirmatory factor analysis (CFA) was conducted using IBM SPSS AMOS software to assess the three-factor model of the threat scale using a total sample of 256 participants. In addition, the hypothesised three-factor model was further compared against an alternative single factor construct of threat. In both models, factor loadings of the observed variables onto the latent factor were acceptable (lowest standardized coefficient of .45 for the one-factor model and .48 in the three-factor model; Stevens, 1992) and model fit is reported in Table 3.

Table 3
Fit Indexes for Confirmatory Factor Analyses of the Intergroup Threat Scale

	$\chi^2(df)$	CFI	SRMR	RMSEA
Single-factor model	116.67 (27)	.90	.063	.114
Single-factor model (1 covariance)	81.83 (26)	.94	.054	.092
Three-factor model (realistic, symbolic, and zero-sum)	111.89 (25)	.91	.063	.117
Three factor model (1 covariance)	72.00 (24)	.95	.052	.089

Using the cutoff values recommended by Hu and Bentler (1999) to evaluate model fit, models should have a Comparative Fit Index (CFI) greater than .95, Standardized Root Mean Square Residual (SRMR) lower than .08, and a Root Mean Square Error of Approximation

¹⁴ In addition to factor analysing the scale by total sample, each experimental group sub-sample was also analysed to assess for potential differences in factor structure between the groups. Regardless of experimental condition, the one-factor solution was identified for both scales.

(RMSEA) lower than .06. In both models, only SRMR was within acceptable ranges.

Reviewing modification indices identified covariance between the error terms between two items, “Ethnic diversity helps to make our society safer and less dangerous” and “Ethnic diversity helps to make our society stronger and more unified”. With similarities in phrasing, the symbolically *stronger unified society* and a realistically *safer and less dangerous society* may not have possessed adequate linguistic distinctiveness, therefore covariation of the two items’ residuals was deemed justifiable (Harrington, 2008). After accounting for the covariance, CFI and SRMR for both models were in acceptable ranges. Though the RMSEA improved, it was still higher than the accepted threshold of .06. However, when population sizes are small ($N \leq 250$) Hu and Bentler (1999) suggest utilising the combination of CFI and SRMR over RMSEA and SRMR to assess model fit as the latter combination, “tend to reject more simple and complex true-population models under the nonrobustness condition” (p. 28). With a sample size of 256, greater preference was given to CFI and SRMR over the RMSEA.

With both the one-factor and theoretical three-factor models displaying similar factor loadings and model fit, it was necessary to further compare the two threat models. When comparing the χ^2 difference between the two models, the one-factor model provided a significantly better fit $\chi^2_{\text{diff}}(2) = 9.83, p < .01$ than the three-factor model; therefore, the one-factor model of threat perception was chosen as the final model (see Werner & Schermelleh-Engel, 2010), which is also the more parsimonious model. Next, the positively termed items were reverse coded so that higher values indicated greater levels of threat perception ($\alpha = .88$). Finally, a composite score for intergroup threat was calculated by averaging the scores of the ten threat scale items.

Descriptive statistics for Study 2. Table 4 displays descriptive statistics and Cronbach’s alphas of the scales. Alphas ranged from acceptable (Societal dysfunction $\alpha = .85$) to poor (Value: self-enhancement $\alpha = .37$). To some extent, low alphas can be attributed

to the low number of items used in certain measures (Tavakol & Dennick, 2011). This is particularly true in the case of the Schwartz Values where only three items were used to measure each higher-order dimensions as opposed to the total 57 value items in the original Schwartz Value Survey (Schwartz, 1992). Further, the observed coefficients were similar to those reported in other studies which utilised the Schwartz' values (e.g., Gouveia, Vione, Milfont, & Fischer, 2015; Milfont, Milojev, & Sibley, 2016).

Table 4

Descriptive Statistics for All Measures Across Experimental Groups

Measures	NZ European-majority condition ^a			Minority-majority condition ^b		
	<i>M</i>	<i>SD</i>	α	<i>M</i>	<i>SD</i>	α
Societal Dysfunction	-.06	1.65	.85	-.20	1.63	.85
Societal Development	1.23	1.11	.65	1.36	1.16	.63
Benevolence	.34	1.05	.86	.69	1.27	.89
Competence	.58	1.06	.59	.68	1.28	.74
Conservation	.25	1.41	.53	.73	1.40	.43
Self-Transcendence	1.08	1.48	.69	1.31	1.65	.79
Openness to Change	1.45	1.37	.63	1.19	1.47	.72
Self-Enhancement	1.16	1.13	.37	1.10	1.28	.46
Supporting Diversity	4.32	.93	.83	4.29	1.10	.89
Evaluative Bias Scale	2.56	.88	.72	2.52	.99	.77
Feelings Thermometer	-	-	.91	-	-	.90
Intergroup Threat	3.59	.93	.86	3.61	1.05	.89
Anger – minorities	1.65	1.98	.92	1.58	1.97	.89
Fear – minorities	1.60	1.86	.94	1.43	1.90	.95
Sympathy – minorities	4.97	2.19	.67	4.90	2.28	.72
Anger – New Zealanders	2.01	2.20	.91	1.75	1.96	.83
Fear - New Zealanders	1.38	1.87	.94	1.00	1.40	.94
Sympathy – New Zealanders	2.91	2.20	.65	3.09	2.16	.60

Notes. Means and standard deviations of the feelings thermometer items are presented in Table 9 of Appendix B.

^a*n* = 126. ^b*n* = 130.

Intergroup emotions. While the experimental condition in Study 2 differed from the previous two studies, mixed-model ANOVAs were again used to maintain consistency when analysing participants' emotions towards minority groups and NZ Europeans. Three mixed-

model ANOVAs were run to examine the effects of experimental condition on the intergroup emotions (i.e., anger, fear, and sympathy) of NZ Europeans towards their own ingroup and towards minorities¹⁵. Experimental condition (NZ European-majority or minority-majority) was the between-subjects factor and the target group of the emotion (NZ Europeans or minorities) was the within-subjects factor. A significant main effect for target group was identified for fear $F(1, 254) = 12.02, p < .001, \eta^2_p = .05$, and sympathy $F(1, 254) = 192.13, p < .001, \eta^2_p = .43$, while anger was marginally significant $F(1, 254) = 3.64, p < .06, \eta^2_p = .01$. No significant interaction between experimental condition and target group were identified.

Examining the mean scores for the emotions within the experimental conditions using paired samples *t*-tests yielded four significant results – two in NZ European-majority condition and two in the minority-majority condition. In the NZ European-majority condition, participants felt more sympathy towards minorities ($M = 4.97, SD = 2.19$) than NZ Europeans ($M = 2.91, SD = 2.20$), $t(125) = 11.42, p < .001$, Cohen's $d = .94$ and more anger towards NZ Europeans ($M = 2.01, SD = 2.20$) than minorities ($M = 1.65, SD = 1.98$), $t(125) = 1.99, p < .05$, Cohen's $d = .17$. In the minority-majority condition, participants also felt more sympathy towards minorities ($M = 4.90, SD = 2.28$) than NZ Europeans ($M = 3.10, SD = 2.16$), $t(129) = 8.53, p < .001$, Cohen's $d = .81$, but felt less fear towards NZ Europeans ($M = 1.00, SD = 1.40$) than minorities ($M = 1.43, SD = 1.90$), $t(129) = 3.58, p < .001$, Cohen's $d = .26$. Each of the nine individual emotion items were also compared between experimental conditions. These results are reported in Table 10 of Appendix C. While some of the emotion items significantly differed between conditions, all findings were in line with the results of

¹⁵ As with the first two studies, a MANOVA was conducted with the experimental condition as the predictor variable and the six intergroup emotion items as outcome variables prior to running the mixed model ANOVAs. The interaction between the experimental condition and intergroup emotions was non-significant $F(6, 249) = 1.12, p = .35$; Wilk's $\Lambda = 0.97, \eta^2_p = .03$.

the mean scores for emotions reported above – therefore, these results are not discussed in further detail.

Concluding the analyses for intergroup emotions, Welch's *t*-tests were used to examine individual emotion items by experimental condition. Only one significant result was identified. Participants in the NZ European-majority condition felt significantly more scared of NZ Europeans ($M = 1.44$, $SD = 1.95$) than those in the minority-majority condition ($M = .92$, $SD = 1.31$), $t(217.25) = 2.54$, $p < .05$, Cohen's $d = .31$.

Racial bias. Welch's *t*-test was conducted to compare the mean score of racial bias towards between the two experimental conditions. Participants in the NZ European-majority condition were not significantly different from those in the minority-majority condition for ingroup favouring racial biases $t(252.15) = .35$, $p = .72$, $d = .04$. One-sample *t*-tests revealed that participants exposed to the NZ European-majority condition $t(125) = -18.30$, $p < .001$, Cohen's $d = -1.63$ ($M = 2.56$, $SD = .88$) and the minority-majority condition $t(129) = -17.00$, $p < .001$, Cohen's $d = -1.49$ ($M = 2.51$, $SD = .99$) both indicated a significant and slight preference for interacting with minority groups regardless of the experimental condition. Additional *t*-tests were run for each racial bias item separately to assess for experimental effects, but no significant differences existed for any of the racial bias items were found.

Attitudes towards specific minority groups. An initial multivariate ANOVA was conducted with experimental condition as the independent variable and the seven ethnic groupings as dependent variables. There was no significant difference between experimental condition based on ethnic grouping, $F(7, 248) = 1.37$, $p = .22$; Wilk's $\Lambda = 0.96$, $\eta^2_p = .04$.

Mean scores for participants' attitudes towards the ethnic groups of New Zealand as measured by the feelings thermometer are presented in Figure 5¹⁶.

Figure 5. NZ Europeans' feelings of warmth towards specific ethnic groups in New Zealand by experimental condition in Study 2.

While the primary analysis of attitudes yielded no significant results, complementing analyses were run to examine the relationships between the different ethnic groupings within each of the experimental conditions. Using paired-samples *t*-tests, Table 5 shows that participants felt consistently and significantly more positive towards their own NZ European ingroup than all other ethnicities regardless of experimental condition. Feelings of warmth towards Māori and Pacific Islanders were significantly higher than the remaining ethnic groupings, but not significantly different than each other in the two experimental conditions. Next, immigrants in general were liked more than the remaining ethnicities in the minority-majority condition, but were not significantly different from Asians in general and Chinese in the NZ European majority condition. In both experimental conditions, the next highest

¹⁶ For the full list of means and standard deviations of Study 2's feelings thermometer see Table 9 of Appendix B.

warmth rating was for Asians in general, but differences existed between the two conditions. In the minority-majority condition, Asians in general were not rated significantly different from Chinese and Arabs, but in the NZ European-majority condition, warmth towards Asians were significantly higher than the two ethnic groups. Finally, in both experimental conditions, ratings for warmth for Chinese and Arabs were not significantly different from each other.

Table 5

Mean Difference Comparison for Warmth Between Specific Ethnic Groups in New Zealand

	1.	2.	3.	4.	5.	6.	7.
1. NZ Europeans	-	.51**	.49**	.86***	1.27***	1.38***	1.52***
2. Māori	.46***	-	.02	.38**	.78***	.84***	1.01***
3. Pacific Islanders	.39**	.07	-	.42***	.83***	.88***	1.02***
4. Immigrants in general	.94**	.48**	.55***	-	.43***	.49***	.61***
5. Asians in general	.99***	.53***	.60***	.06	-	.07	.19
6. Chinese	1.10***	.63***	.70***	.17	.14*	-	.11
7. Arabs	1.26***	.80***	.87***	.33***	.27**	.14	-

Notes. Mean difference below the dash denote participants in the NZ European-majority condition and mean differences above the dash denote participants in the minority-majority condition.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Action intention to support diversity. To assess action intentions related to diversity in New Zealand, Welch's t -test was conducted to compare the mean score of the Supporting Diversity Scale between the two experimental groups. No significant differences for action intention was identified between the groups, $t(249.28) = .27$, $p = .79$, $d = .03$. Recalling that score of 4 is the mid-point of the scale and higher numbers are an indication of greater endorsement of supporting diversity action, one-sample t -tests showed that participants in both the NZ European-majority condition, $t(125) = 3.89$, $p < .001$, Cohen's $d = .35$ ($M = 4.32$, $SD = .93$) and those in the minority-majority condition, $t(129) = 2.98$, $p < .01$, Cohen's $d = .26$ ($M = 4.29$, $SD = 1.10$) indicated a significant and slight preference for acting in support of diversity regardless of the experimental condition. Complementing these analyses,

each of individual action intention items were compared between the two experimental conditions. None of the items were found to be significantly different between the two experimental conditions.

Threat perception of diversity. Welch's *t*-test was conducted to compare the mean score of the Intergroup Threat Scale between the two experimental conditions¹⁷. Participants in the NZ European-majority condition were not significantly different from those in the minority-majority condition for threat perception, $t(252.08) = .21, p = .83, d = .02$. In the Intergroup Threat Scale, 4 is the mid-point of the scale with higher numbers indicating greater threat perception. One-sample *t*-tests indicated that participants in both the NZ European-majority condition, $t(125) = -4.97, p < .001$, Cohen's $d = -.44$ ($M = 3.59, SD = .93$) and the minority-majority condition, $t(129) = -4.19, p < .001$, Cohen's $d = -.37$ ($M = 3.61, SD = 1.05$) displayed a significant and slight inclination towards lower threat perception regardless of the experimental condition. Complementing Welch's *t*-tests were run for each scale item to assess for experimental effects of specific threat items. One item, "Certain ethnic minority groups do not appreciate the New Zealand way of life", was found to be significantly different between experimental conditions, $t(253.14) = 2.12, p < .05$, Cohen's $d = .27$, with those in the minority-majority condition ($M = 4.34, SD = 1.49$) more likely to agree with this statement than those in the NZ European-majority condition ($M = 3.96, SD = 1.36$).

Ingroup benefit from diversity. A Welch's *t*-test was conducted to compare the score for the item assessing ingroup benefit from diversity between the two experimental conditions. There were no significant differences between the two groups, $t(253.59) = .56, p = .58$, Cohen's $d = .06$. With a scale mid-point of 4 and higher scores indicating greater

¹⁷ In addition to testing the overall scale, mean scores for real and symbolic threat and zero-sum beliefs were compared between experimental groups. No significant differences were identified.

ingroup benefit from diversity, one-sample t -tests indicated that those in the NZ European-majority condition, $t(125) = -5.84, p < .001$, Cohen's $d = -.52$ ($M = 4.71, SD = 1.37$) and the minority-majority condition, $t(129) = -4.76, p < .001$, Cohen's $d = -.42$ ($M = 4.62, SD = 1.48$) indicating a significant and slight agreement that their ethnic group will benefit from increasing diversity in New Zealand.

Collective futures dimensions. Analysis of the collective futures dimensions are divided into two sections. The first set of analyses draw comparisons between the two experimental conditions by societal measures (dysfunction and development) and the measures assessing the people of the future society (traits and values). The analysis is supplemented with complementary analyses to further examine the data from this exploratory research. In the second section, the relationships within each experimental condition are examined. This is done to gain insight into potential context specific differences associated with the demographic information provided within each experimental group.

Comparison of collective futures dimensions. To begin the analysis of the collective futures dimensions, an initial multivariate ANOVA was conducted with experimental condition as the independent variable and the eight collective futures dimensions as dependent variables. There was a significant difference between experimental condition based on collective futures dimensions, $F(8, 247) = 3.03, p < .01$; Wilk's $\Lambda = 0.91, \eta^2_p = .09$. As significant differences were identified, main effects for experimental condition were examined.

Significant main effects for the benevolence trait, $F(1, 254) = 5.81, p < .05, \eta^2_p = .02$, and for the conservation value, $F(1, 254) = 7.57, p < .01, \eta^2_p = .03$, were identified. Post hoc Welch's t -tests for these two collective futures dimensions were conducted to examine differences between experimental conditions. For benevolence traits, participants in the

minority-majority future condition anticipated that people in the future New Zealand society would be more benevolent ($M = .69$, $SD = 1.27$) than those in the NZ European-majority condition ($M = .34$, $SD = 1.05$), $t(247.40) = 2.41$, $p < .05$, $d = .30$. Similarly, participants in the minority-majority condition also anticipated significantly higher levels of conservation values ($M = .73$, $SD = 1.40$) than those in the NZ European-majority condition ($M = .25$, $SD = 1.41$), $t(253.61) = 2.75$, $p < .01$, $d = .34$.

Complementing these results, Welch's t -tests were conducted for all collective future items to compare means between the two experimental conditions. A total of nine items were found to statistically differ between conditions – these displayed in Table 6. All items indicated expectations for future societal improvement over the present-day with the exception of less *respect for tradition* in the NZ European-majority condition.

Table 6
Descriptive Statistics Using Welch's t-Test to Compare Individual Item Means for Collective Future Dimensions

Measures	NZ European-majority condition		Minority-majority condition		t
	M	SD	M	SD	
Societal Development					
Volunteering	.37	1.95	.88	1.89	2.14*
Extent of community groups	.87	1.86	1.67	2.14	3.17**
Benevolence					
Caring	.44	1.37	.97	1.63	2.79**
Considerate	.32	1.55	.88	1.81	2.69**
Sincere	.11	1.39	.64	1.62	2.80**
Trustworthy	.06	1.42	.44	1.67	1.98*
Conservation					
Self-discipline	.04	1.65	.51	1.73	2.21*
Respect for tradition	-.37	2.32	.25	2.59	2.01*
Self-Transcendence					
Honesty	.21	1.58	.65	1.76	2.14*

Note. * $p < .05$. ** $p < .01$.

Additionally, participants' scores in the minority-majority condition were significantly higher than those in the NZ European-majority condition across all collective future dimension items. Six of the significant items fell under either benevolence traits (4 items) or conservation values (2 items) which were in line with expectations based on the results of the primary analyses. The remaining three items arose from the societal development items (volunteering and extent of community groups) and the self-transcendence value items (honesty).

Contextual differences in perceptions of future change. To this point, most of the analyses assessed for group differences between the two experimental conditions. However, an added benefit of utilising the collective futures framework is the ability to analyse the associations between outcome and predictor variables. Looking within each experimental condition, the relationships between the collective futures dimensions, behavioural intention, and threat perception towards diversity are assessed. From this, a clearer picture of how predictions of future demographic composition in New Zealand impacts how participants interpret present-day diversity in terms of threat perception and action intentions towards diversity in New Zealand.

To begin, hierarchical multiple regression analyses were conducted to identify whether the experimental condition moderated the associations between the collective futures predictor variables with action intentions and threat perception. After ensuring the assumptions associated with conducting hierarchical regressions were met, the regressions were run following the procedures outlined by Aiken and West (1991). The targeted collective futures dimension was entered at Step 1, followed by the corresponding collective futures dimension within group category (e.g., if societal dysfunction was being examined, societal development was entered in the next step) and a dummy coded experimental condition variable at Step 2. Finally, an interaction term between the target dimension and the

experimental condition variable was included in Step 3¹⁸. After running the analyses, the interaction terms between experimental condition with societal dysfunction, societal development, and benevolence were each found to explain additional significant variance. The results of these analyses are displayed in Table 7.

Table 7
Moderating Effect of Experimental Condition Between Collective Futures Dimensions and Outcome Variables Associated with Diversity

Measures	Outcome variable							
	Action Intentions				Threat Perception			
	β	t	R^2	ΔR^2	β	t	R^2	ΔR^2
Step 1			.024	.024*			.038	.038**
Societal Dysfunction	.16	2.51*			-.19	-3.15**		
Step 2			.044	.019			.075	.037**
Societal Dysfunction	.12	1.82			-.14	-2.22*		
Societal Development	.15	2.26*			-.20	-3.18**		
Experimental condition	-.02	-.33			.02	.31		
Step 3			.060	.017*			.090	.015*
Societal Dysfunction	-.01	-.11			-.02	-.25		
Societal Development	.12	1.89			-.18	-2.82**		
Experimental condition	-.02	-.31			.02	.29		
Interaction term	.19	2.11*			-.18	-2.03*		
Step 1			.030	.030**			.056	.056***
Societal Development	.17	2.82**			-.24	-3.88***		
Step 2			.044	.013			.075	.019
Societal Development	.15	2.26*			-.20	3.18**		
Societal Dysfunction	.12	1.82			-.14	-2.22*		
Experimental condition	-.02	-.33			.02	.31		
Step 3			.069	.026**			.089	.014*
Societal Development	-.02	-.24			-.08	-.86		
Societal Dysfunction	.09	1.42			-.12	-1.91		
Experimental condition	-.02	-.35			.02	.21		
Interaction term	.24	2.63**			-.18	-2.00*		
Step 1			.069	.069***				
Benevolence	.26	4.33***						
Step 2			.093	.024*				
Benevolence	.17	2.25*						
Competence	.18	2.42*						
Experimental condition	-.05	-.82						
Step 3			.112	.019*				
Benevolence	.01	.10						
Competence	.15	2.00*						
Experimental condition	-.05	-.77						
Interaction term	.22	2.32*						

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

¹⁸ To avoid high multicollinearity with the interaction term, the predictor variables were centred prior to running the analyses.

With respect to societal dysfunction, both action intentions, $\Delta R^2 = .02$, $\Delta F(1, 251) = 4.46$, $p < .05$, $\beta = .19$, $t(251) = 2.11$, $p < .05$, and threat perception, $\Delta R^2 = .02$, $\Delta F(1, 251) = 4.13$, $p < .05$, $\beta = -.18$, $t(251) = -2.03$, $p < .05$, were moderated by experimental condition. Similarly for societal development, both action intentions, $\Delta R^2 = .03$, $\Delta F(1, 251) = 6.91$, $p < .01$, $\beta = .24$, $t(251) = 2.63$, $p < .01$, and threat perception, $\Delta R^2 = .01$, $\Delta F(1, 251) = 3.99$, $p < .05$, $\beta = -.18$, $t(251) = -2.00$, $p < .05$, were moderated by experimental condition. Finally, experimental group membership significantly moderated the relationship between the collective futures dimension of benevolence and action intention $\Delta R^2 = .02$, $\Delta F(1, 251) = 5.37$, $p < .05$, $\beta = .22$, $t(251) = 2.32$, $p < .05$.

An examination of the interaction plots displayed in Figure 6 revealed a clear distinction between the two experimental groups. The relationships between outcome variables of both action intention and threat perception with collective futures predictor variables were only statistically significant for individuals in the minority-majority condition. In other words, participants in the minority-majority future condition were more willing to act in support of diversity if they felt that the future would be: (1) more societally developed, (2) more societally dysfunctional, or (3) New Zealanders were more benevolent. In addition, participants in the minority-majority condition were also less likely to feel threatened by diversity if they felt that the future would be: (1) more societally developed or (2) more societally dysfunctional. None of these relationships were found for participants in the NZ European-majority condition.

Figure 6. Moderating effect of experimental condition on the relationship between collective futures dimensions and perceptions towards diversity.

Discussion

Culminating this research, Study 2 provides the strongest evidence yet that majority group members in New Zealand perceive an impending minority-majority shift differently than those in Canada and the US. Based on the findings of the first two studies, it was predicted that attitudes, emotions, and behavioural intentions towards minorities would not differ by demographic condition, and only greater sympathy would be felt towards NZ Europeans in the minority-majority future condition. These predictions ran contrary to expectations from the Canadian and US studies where a minority-majority future was found to elicit threat related attitudes and emotions for majority group members.

The predictions for Study 2 were partially supported as NZ Europeans in the minority-majority condition did not significantly differ from those in the NZ European-majority condition for negative outgroup emotions, attitudes or action intentions. While the prediction for ingroup sympathy was not supported, a significant main effect for sympathy was found in both experimental condition which stresses the centrality of this emotion when considering NZ Europeans' psychological reaction to future perceptions of ethnic shift.

Though no predictions were made relating to the collective futures dimensions, the significant findings of this research successfully validated the utility of the model within a new experimental context. From the merger of the demographic manipulation and the collective futures framework, significant differences in expectations for the future were identified. However, in addition to this, present-day attitudes and behavioural intentions were also found to differ depending on the context of the individual's expectations for the future society and its people. To our knowledge, this is the first study that has experimentally linked specific future expectations with present-day consequences. Implications of these findings are considered next in the general discussion.

General Discussion

Over the next century, New Zealand's ethnic demography is expected to undergo a dramatic change. While NZ Europeans will likely remain the largest ethnic group in the country, in less than 50 years over half of the nation's population is expected to be comprised of a minority collective. In the present research, three studies were conducted to investigate how NZ Europeans' perceive this possible minority-majority future.

Based on the findings of two recent minority-majority studies from Canada and the US (Craig & Richeson, 2014a; Outten et al., 2012), it was initially predicted in Study 1 that this impending loss of population majority would be threatening to NZ Europeans. Additionally, this threat would be associated with psychological and behavioural responses that would be favourable for their NZ European ingroup and negative towards minorities. These predictions were not fully supported, and over the course of this research the evidence suggested that majority group members in New Zealand did not perceive this ethnic shift as overtly negative as those in Canada and the US.

Combining the demographic shift manipulation from previous work (Craig and Richeson, 2014a; Outten et al., 2013) with a study framework which links future projections with present-day attitudes (Bain et al., 2013), it was predicted in Study 2 that NZ Europeans anticipating a minority-majority future would not differ from those who expected a NZ European-majority future across all threat measures with the exception of ingroup and outgroup sympathy emotions. While support for differences in group-directed sympathy was not identified, NZ Europeans did not differ on any of the other threat measures regardless of future demographic conditions in line with predictions. In addition, it was found that NZ Europeans not only viewed a minority-majority future more positively than a NZ European-majority future, but their expectations were also associated with diversity-related threat

perception and action intentions in the present day. The theoretical and methodological implications of these findings are discussed in the next section, followed by limitations and future direction in minority-majority research.

New Zealand Response to a Minority-Majority Future

Prior research on impending minority-majority population shifts has shown that majority groups react to their loss of population majority in a manner that is consistent with the ITT and threat theory in general (Craig & Richeson, 2014a, 2014b; Outten et al., 2012). This has led to the hypothesis that majority groups perceive an expected ethnic shift as a threat which possesses both tangible (e.g., reduced group power and access to resources) and intangible (e.g., loss of symbolic cultural identity) implications for their group. Because of the consistency in these findings, it is important to examine this emergent dynamic from a wide variety of contexts and methods to determine if this threat response represents a universal majority group reaction to such a profound change in group dynamics. Therefore, data gained from majority group members in New Zealand adds important insights into the limited existing literature on this topic.

Threat related measures. Whether it be comparing present-day and future projections or comparisons between two future predictions, exposure to a minority-majority future did not elicit differences in ingroup biases, warmth towards ethnic groups, or diversity related action intentions or threat perceptions for NZ Europeans. For this group, the strongest and most consistent difference identified related to feelings of ingroup and outgroup sympathy which was found in two out of the three studies (Study 1a and Study 1b). In line with Outten et al. (2012), NZ Europeans felt more sympathy for their ingroup in the minority-majority future condition compared to those in the present-day condition (Study 1a and 1b). This provides support for Outten and colleagues (2012) assertion that loss of population

majority would result in feelings of commiseration for their group's loss of status or position. However, unlike in past research, NZ Europeans in the minority-majority condition also felt *less* sympathy towards minorities than those who were in the present-day condition (Study 1b). With respect to decreasing outgroup sympathy, Iyer Leach and Crosby (2003) found that for White Americans, outgroup sympathy was predictive of support for egalitarian based governmental policies that supported disadvantaged Black Americans. In the current study, increasing population equality could be prompting a reverse effect where NZ European no longer feel as sympathetic towards outgroups when they see that their ingroup's demographic advantage is diminishing.

While the differences in ingroup and outgroup sympathy is interesting, the truly surprising result of this research arose from the non-significant findings of the other threat-based measures. These results run contrary to expectations based on the ITT (Stephan & Renfro, 2002), group threat theory (Blumer, 1958), and the majority of the North American findings on expected minority-majority population shifts (Craig & Richeson, 2014a, 2014b; Outten et al., 2012). According to the threat literature, situations perceived as threatening tend to elicit distinctive reactions for ingroups and outgroups (Stephan and Renfro, 2002). For the ingroup these are associated with ingroup strengthening responses (e.g., positive emotions, ingroup favouring biases, ingroup preserving actions; Craig & Richeson, 2014a; Outten et al., 2012; Mackie et al., 2000) and outgroup limiting responses (e.g., negative attitudes and emotions, outgroup stereotyping, discriminatory behaviour, violence, etc.; Quist & Resendez, 2003; Stephan et al., 2009). With few significant findings arising from the threat measures for the NZ European participants (which included sample sizes comparable to, or larger than those in previous studies), this could indicate that the demographic shift manipulation was simply not effective enough to elicit significant differences in the New Zealand context. However, a more probable explanation is that NZ Europeans may not

perceive a minority-majority future to be as threatening as majority group members in North America. Before delving into this line of thinking, however, additional support for this supposition is offered by considering the participants' expectations for the future which were examined in Study 2 of this research.

Future expectations. In the ITT, intergroup threat is experienced when a person feels that they, or their group, are in a position to be harmed by some external source (Stephan et al., 2009). While in some cases the threat can be swift or immediate (e.g., a shark attacks you while you are surfing), in general, threats are associated with potential future changes. In other words, many events or situations are perceived as threatening because of how they may impact the future status or wellbeing of an individual or their larger ingroup. This focus on future context is not extensively covered in the ITT; however, given the unexpected and contrary results of the current investigation, attending to this often overlooked dimension was made all the more relevant.

While relatively few significant differences were identified between groups in the threat related measures, the findings from the collective futures dimension items uncovered several key differences for NZ Europeans when anticipating a minority-majority future versus a NZ European-majority future. Examining mean scores for the dimensions, NZ Europeans in the minority-majority future believed that the New Zealand population would possess more benevolence traits and conservation values than those in the NZ European-majority condition. More specifically, when looking at the individual collective future items, participants in the minority-majority condition felt that New Zealand society would have greater levels of community groups and volunteering. In addition, they also believed that New Zealanders would be a more caring, considerate, sincere, and trustworthy people who also valued greater self-discipline, respect for tradition, and honesty. In essence, NZ Europeans who were asked to envision a predicted minority-majority future believed to a

greater degree that New Zealand society and its people would become a kinder and more community-focused nation than those who expected diversity levels similar to those in the present day. In light of this finding, the lack of perceived threat is not only reasonable, but in terms of the ITT, it would be expected. If realistic and symbolic threats are triggered by the risk of physical harm, reduced access to resources, or the deterioration of the integrity or validity a group's meaning system (Stephan et al., 2009), then the positive expectations arising from the minority-majority future would not have prompted a threat response in NZ Europeans.

Capitalising on another key feature of the collective futures framework, the examination of the relationship between future predictions and present-day measures also yielded novel insights. For NZ Europeans in the NZ European-majority condition, no collective future dimension was associated with present-day measures; however, participants in the minority-majority future condition were shown to be influenced by their contextual expectations for the future. In terms of minority-majority research, this is the first established link between present-day attitudes and future expectations. Previously, Craig and Richeson (2014b) were able to experimentally demonstrate that White Americans exposed to minority-majority shift information were more likely to adopt more politically conservative views. By utilising the collective futures framework in Study 2, we were also able to identify that minority-majority future had present-day psychological ramifications, but above and beyond this, we were able to connect this directly to specific future contexts. For NZ Europeans who anticipated a minority-majority future, the more dysfunctional, developed, or benevolent they envisioned the future to be, the more they were inclined to act in support of diversity in the present. In addition, they were also found to feel less threatened by present-day diversity if they believed that the future would be more societally developed or more societally dysfunctional.

Most of these relationships make intuitive sense and are consistent with past studies which used the collective futures framework and relevant research from the wider future-centric psychological literature. If an individual anticipates that a particular future would be better than today (e.g., more developed or benevolent) they would be more willing to work towards making this future their reality (Bain et al., 2013; Bain et al., 2016; Milfont et al., 2014; Oettingin & Mayer, 2002). Additionally, when people envision the future to be worse than the present day, they are also compelled to address the situation in the present to alleviate the effects of the outcome (Aspinwall, 2005; Bain et al., 2013). In line with these past findings, when NZ Europeans envisioned the minority-majority future as being more developed and benevolent than the present day, they were willing to work towards this future and were less threatened by ethnic diversity in their daily life.

However, not all of the relationships between present-day and future expectations are as easily accounted for. Until now, previous research using the collective futures framework have found all relationships between future expectations and present-day attitudes to be in their expected directions (e.g., a better future was linked to greater present-day support and a more dysfunctional future was linked to present-day actions to reduce dysfunction; Bain et al., 2013; Bain et al., 2016; Milfont et al., 2014). However, in the present research, it was also found that future societal dysfunction and present-day threat perception of diversity had an inverse relationship. This meant that, for NZ Europeans in the minority-majority future condition, the more dysfunctional they felt the future would be, the less they felt threatened by present-day levels of ethnic diversity. Interpretation of this finding is less straightforward. One possible explanation could relate to Taylor's (1983) concept of *positive illusions* which are described as "positively distorted beliefs in the face of threatening information" (Taylor & Armor, 1996, p. 875). These beliefs are believed to help an individual regain a sense of personal control over the situation and maintain optimism about the future. Therefore, in the

face of a potentially negative future for their ingroup, NZ Europeans were inclined to face the dysfunction with increasingly positive regard and drew strength from the greater ethnic diversity rather than feeling threatened by it. Whether or not this is the case, this finding highlights the complexity of future thinking and the need to further explore how individuals perceive future change and how this impacts their present-day attitudes and behaviours.

Prospective dominant group perspective. The novel and unexpected results of this research give rise to a basic question: If members of New Zealand's ethnic majority do interpret a minority-majority future differently, and potentially less threatening than those in North America, what are the primary drivers of this perceptual difference? One possible key factor that has been previously discussed in this thesis relates to New Zealanders' general understanding of national identity and their beliefs about diversity.

When it comes to symbols of national identity, certain objects may readily come to mind. A country's flag, particular types of food, music, and art can all be seen as items which symbolically represent core aspects of a nation (Kolstø, 2006). In Australia and the US, being ethnically White has also been found to be an implicit exemplar of national identity (Devos & Banaji, 2005; Sibley & Barlow, 2009). Further, Danbold and Hou (2015) identified that, when White Americans felt their status as the prototypical "All-American" ethnic group in the country to be in jeopardy, they were more resistant to cultural diversity and more likely to support cultural assimilation.

Ethnic plurality, however, has long been a central feature of New Zealand identity stemming from the initial partnership between the early British migrants and indigenous Māori (Wright, 2013). As a result of this relationship, New Zealanders were found to implicitly associate national identity with ethnic symbols and faces of both NZ Europeans and Māori (Sibley & Liu, 2007; Sibley, Liu, & Khan, 2008). This propensity towards

diversity could also be further linked to New Zealanders' more positive views towards multiculturalism and immigration (Ward & Masgoret, 2008). When taken together, these positive beliefs could legitimise realistic and symbolic ingroup losses associated with increasing ethnic diversity and, in turn, result in lower levels of threat perception in the present day (Jetten et al., 2011). Coupling these ideas with the fact that high power groups are less likely to perceive events as threatening compared to low power groups in general (Gousseau & Garcia-Retamero, 2007), NZ Europeans may be predisposed to focus on the positive elements that diversity brings to society over potential threat to ingroup status when envisioning a more ethnically diverse future – even when this diversity will cost them their population majority. As a result, where increasing diversity is a threat to Whites' power and status in other countries, in New Zealand even more extreme levels of ethnic diversity may be more generally supported.

NZ European apprehension. Based on this interpretation, it is tempting to conclude that majority group members in New Zealand are simply not threatened by this impending loss. However, this explanation may be too simplistic. While NZ Europeans may see the legitimacy of this transition and are more open and accepting of a minority-majority future compared to their North American counterparts, several elements of the research findings suggest that this transition is not completely without negative implications. Rather than endorsing outright acceptance, NZ Europeans may instead be displaying a mix of optimism and a culturally specific form of apprehension towards a minority-majority future. Support for this idea stems from the findings relating to intergroup emotions, supplementary analyses of scale measures, and the feelings thermometer discussed in more detail below.

Evidence 1: Intergroup sympathy. In the first two studies of this research which compared present-day demographics to a minority-majority future, sympathy towards minorities was significantly higher than sympathy towards NZ Europeans in the present-day

condition, but this difference was not present for participants in the future condition. In the minority-majority condition of both studies, this resulted from significantly higher levels of sympathy towards NZ Europeans and, in Study 1b, significantly lower feelings of sympathy towards minorities. One explanation for this result could be that participants were envisioning a more benevolent future where NZ Europeans have embraced ethnic equality and feel the same towards their ingroup and other outgroups. However, significant differences found in the supplementary analyses of individual scale items in Study 1b and Study 2 as well as the non-significant results of the warmth thermometer provide support for the apprehension hypothesis.

Evidence 2: Supplementary analysis of scale items. Based on the exploratory analysis of the three emotion items of anger in Study 1b, it was identified that NZ Europeans in the future condition felt significantly more annoyance towards minorities than participants in the present-day condition. This difference was not large enough to result in a significant difference in the overall mean score for the anger measure; however, it could reflect a more accurate culture-based emotional response towards the impending minority-majority shift. While ‘anger’ and ‘resentment’ may be viewed as too strong or inappropriate as emotional labels in New Zealand, ‘annoyance’ may more aptly capture the sentiments of NZ Europeans. This, in turn, would more readily explain the lower levels of sympathy towards minorities and higher levels of sympathy felt towards their own ingroup. This idea is supported by Outten and colleagues’ (2012) empirically supported hypothesis that dominant group members experience feelings of sympathy for their ingroup when faced with their impending loss of population majority.

Similar to the previous example, supplementary analysis of the threat perception items in Study 2 also revealed significant differences which may hint at other facets of a NZ European perspective on the impending ethnic shift. The mean score for threat perception

scale was not significantly different between the NZ-European-majority and minority-majority conditions, but participants who reviewed the minority-majority future were significantly more likely to indicate that “some ethnic groups do not appreciate the New Zealand way of life”. This finding signifies that NZ Europeans are cognizant of ethnic differences in the country and, more importantly, that not all groups are seen in an equal light. This is noteworthy, especially when considering the outcome of the feelings thermometer in Study 1b and Study 2.

Evidence 3: Feelings thermometer. From the previous minority-majority literature (Craig & Richeson, 2014a; Outten et al., 2012), it was expected that participants would feel lower warmth towards minorities in the future condition, but this was not identified. However, this lack of statistically significant difference is not necessarily evidence of positive or even neutral attitudes towards minorities. If perceptions towards NZ Europeans and minorities were becoming similar, one would also expect warmth between groups to shift towards relative equality as well. This, however, was not the case. The presence and stability of hierarchical differences in warmth towards ethnic groups in New Zealand (with NZ Europeans on top and Asians and Arabs on the bottom) is consistent with past findings (Ward & Masgoret, 2008), and in particular, a 2011 study by Sibley and colleagues that reviewed ethnic group stereotypes in New Zealand. The research was based on the stereotype content model and examined New Zealanders’ (64.6% NZ European) stereotypical feelings of warmth and competence towards NZ Europeans, Māori, Pacific Islanders, and Asians in the country. Patterns of warmth were similar to the current study with NZ Europeans as being most warm, followed by Pacific Islanders, Māori, and Asians. In terms of competence, NZ Europeans were again rated the highest – followed closely by Asians. Both Māori and Pacific Islanders were rated similarly and far lower than the other two groups. Overall, the

consistency in NZ Europeans' warmth towards ethnic groups in New Zealand appears to be highly stable and not easily affected by the impending shift in national demographics.

In light of these considerations, NZ Europeans may indeed be inclined to view diversity as positive in general, but may also perceive realistic or symbolic threats under specific conditions or when thinking about certain ethnic minority groups. This may be particularly true in relation to Asians in New Zealand, considering they are stereotyped as being highly competent but low in warmth (Sibley et al., 2011). In both the ITT (Stephan et al., 2009) and the stereotype content model (Fiske et al., 2002), this combination is thought to induce feeling of threat driven by concerns over a salient and competitive outgroup. This idea of context and situational threat reconciles our findings with other New Zealand based intergroup research which identified NZ Europeans' generalised endorsement of social dominance over other groups (Sibley & Liu, 2004), a resistance towards resource distribution policies associated with biculturalism (Sibley et al., 2005), and negative attitudes and discriminatory behaviours directed specifically towards Asians in New Zealand (Girling, Liu, & Ward, 2010).

Limitations

This research has offered several novel theoretical and social insights on threat perception and intergroup relations. However, it is important to reflect on factors which impact the scope and generalisability of the findings. First, it is necessary to consider the participant samples used in the experiments. In Study 1a, participants were drawn from members of the general public, but in Study 1b and Study 2 student convenience samples were used. While the use of student samples followed the two main studies this research tried to replicate and possess positive consequences in terms of replication and comparability of past minority-majority research (Brandt et al., 2014), some researchers voice serious concerns

over the universality of findings based on these non-representative groups (Henrich, Heine, & Norenzayan, 2010; Peterson & Merunka, 2014; Sears, 1986). Considering the characteristics of the participants and research location, this is a particularly relevant issue for this research as the study samples may have possessed pre-existing positive biases towards ethnic diversity.

Recalling the findings of Ward et al. (2011), women, young people, and people with higher levels of education were the most likely to hold positive attitudes towards migrants in New Zealand. This description characterises a large proportion of the participants used in this research, particularly those in Study 1b and Study 2, which drew from the university sample pool (Study 1b: 86% of participants were female, mean age 18.65 years; Study 2: 74% of participants were female, mean age 19.13 years). Additionally, other research has identified that emerging adults who are studying or have just graduated tend to hold more optimistic views about the future (Van Audehove & Vander Laenen, 2015). Beyond this sample issue, it is also appropriate to note that the findings of this research were not based on a national representative sample. Only individuals living in the relatively urban and ethnically diverse Wellington region of New Zealand were included in the studies. This may also have impacted the study outcomes as research found that those living in rural areas (Fennelly & Federico, 2008; Glorius, 2017), or areas with extremely high levels of diversity (e.g., Vancouver, Canada and Auckland, New Zealand; Outten et al., 2012; Ward et al., 2011) generally display more negative attitudes towards diversity and immigration.

Next, the conceptualisation of the ethnic diversity in New Zealand under a single homogenous ‘minority’ group may have overshadowed unique perceptions toward specific ethnic groups within the country. While this categorisation may be appropriate in the North American contexts, it is likely that this label was less suitable for research conducted in New Zealand. Considering New Zealanders’ entrenched pluralistic identity stemming from its dual

British and Māori heritage (Sibley & Liu, 2007; Sibley, Liu, & Khan, 2008) and NZ Europeans' hierarchy of positive feelings towards ethnic groups identified in the current and past studies (e.g., Sibley et al., 2011; Ward & Masgoret, 2008), important insights on New Zealand intergroup dynamics may have been missed. On a similar vein, utilising census defined categories to identify group membership can also have its own pitfalls. Already, some in the US argue that a minority-majority future is a flawed concept as children with blended ethnic heritage will become increasingly common, and that identity in general is based on one's own subjective interpretation (Darity, 2016). In New Zealand, the question of identity is also quite relevant as a sizeable number of people categorise themselves simply as being "New Zealanders" as opposed to identifying with their ancestral birth location. The use of this label peaked in the 2006 census with 11% of the population identifying as New Zealanders (Cormack & Robson, 2010), but the number of those identifying under this category has declined in recent years (Statistics New Zealand, 2017).

Finally, factors associated with the experimental design limited the interpretability and comparability of the results within and across studies. In particular, the modification of the experimental design in Study 2 limits the extent to which comparisons can be made between present-day attitudes and expectations for the future minority-majority shift. While the inclusion of the collective futures framework provided distinct methodological and theoretical insights, it only allowed for comparison of two future conditions. The inclusion of an additional third present-day control condition in Study 2, similar to that of the first two studies, would have maintained methodological continuity and resulted in additional insights into present-day views versus future expectations towards ethnic diversity. From this, greater confidence could have been established to further justify the rationale offered in the prospective New Zealand perspective of an impending minority-majority future. However, sample size requirements meant inclusion of a third condition was not viable in the present

research. Also, when considering elements of study design, the use of survey materials meant that the study captured participants' subjective perceptions towards present-day and future ethnic diversity. These responses may not completely overlap with participants' actual real-world attitudes and actions relating to increasing ethnic diversity in New Zealand.

Future Directions

Despite its limitations, the present research into majority group members' perceptions towards a minority-majority future in New Zealand has potentially serious implications for New Zealand and the greater literature on intergroup dynamics. In its broadest context, the studies have offered new considerations for the growing minority-majority shift research by providing the first example of a possible non-threat based majority group reaction to expected loss of population majority. In addition, this research not only built on past research, but also broke new methodological and theoretical grounds by bringing together two different study designs: the experimental demographic shift manipulation (Craig and Richeson, 2014a, 2014b; Outten et al., 2012) and the collective futures framework (Bain et al., 2013). The significant findings in Study 2 have already proven the utility of this merger as this design was instrumental in identifying that NZ Europeans who anticipated a minority-majority future were less threatened by diversity in the present day and more willing to work towards this ethnically diverse future when they believed that, from this change, New Zealand would become a more dysfunctional, developed, or benevolent country. This window into understanding present-day attitudes and reaction to perceived threats could not only provide valuable insight into minority-majority shift research in North America, but it would also be useful across the entire field of threat and intergroup relations.

For New Zealand, specifically, these findings provide what is believed to be the first glimpse into majority group members' perceptions of the anticipated minority-majority future

for the country. From these results, it appears that NZ Europeans are optimistic about increasing diversity in their country, but the need for further evidence is apparent. To gain an accurate representation of majority group perceptions towards this impending shift, samples of NZ Europeans must be more representative of the demographic and regional characteristics of this group. Regardless, these findings have important implications for domestic researchers, governmental ministries, and non-governmental organisations. This study complements previously cited literature on stereotypes, prejudice, social dominance, and authoritarianism in New Zealand (e.g., Duckitt & Fisher, 2003; Sibley et al., 2005; Sibley et al., 2011), but is also highly relevant in other research domains. These include but are not limited to: acculturation in New Zealand (i.e., the cultural change that naturally occurs for groups when they are in first-hand continuous contact; Redfield, Linton, & Herskovits, 1936), workplace and organisational research (e.g., Coates & Carr, 2005), and group dynamics in the education sector, especially in interactions between domestic and international students (e.g., Ward, Masgoret, & Gezentsvey, 2009). From local schools and communities to the workplace and the greater society, insight into how New Zealand's majority group perceives increasing diversity is essential to understanding and successfully managing intergroup relations in New Zealand.

Finally, for both New Zealand and the broader minority-majority research, these transitions will not only have repercussions for the current dominant majority group, but also for the minority groups within each of the respective nations expected to undergo this transition. Not only will this change the dynamics between the minority groups and the existing majority group, this will also affect how the various minority groups will perceive and relate to one another. With some Māori already expressing concern over the current levels of diversity and immigration, particularly from Asian countries (Ip, 2003),

understanding how minority groups perceive and react to these changing group dynamics will be pivotal for the future of New Zealand.

Conclusion

In terms of the social, environmental, and economic cost of human conflict, understanding the complexities for perceiving threats is highly important. With good reason, much of this research has been focused on the processes of threat perception and its impact on intergroup relations in the present. However, as shown in developing literature on minority-majority shifts to population demographics, one dimension that is highly relevant, yet rarely studied, is how people envision and react to future changes to group dynamics. The results of this research have provided new and thought-provoking insights into this emerging field. While minority-majority shifts can be seen as potentially threatening to majority groups, this upsurge of ethnic diversity can also be met with optimism and expectations of a better tomorrow.

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Appendix A

Replication Overview of Study 1a

While it is universally recognised that replication is vital in scientific research (Blainey, Krzywinski, & Altman, 2014), in the social sciences, there is no definitive guideline for approaching this topic (Brandt et al., 2014) and interpreting the results from replications can be challenging and even controversial (for an overview see Świątkowski & Dompnier, 2017). Despite the obstacles, replication in psychological science (Munafò et al., 2017) and cross-cultural psychology (Milfont & Klein, in press) has been receiving greater attention in recent years and can be organised into three different types (Brandt et al., 2014): conceptual, direct, and exact.

While direct replications seek to address potential statistical error and reporting biases (Westfall, Judd, & Kenny, 2015) and exact replications endeavour to reproduce an original study with 100 percent accuracy (which many view as being impossible; Stroebe & Strack, 2014), the aim of a conceptual replications is to “convincingly argue that the same theoretical constructs thought to account for the results of the original study also account for the results of the replication study” (Westfall et al., 2015, p. 391). As the research of this thesis sought to examine the theory that impending demographic change to national population has an impact on majority group members’ attitudes and perceptions from within a previously unexplored societal context, the following study constitutes a cross-cultural ‘conceptual’ replication.

Replication Assessment of Study 1a

In line with conceptual replications the experimental methods were duplicated to test if a theoretical construct is responsible for the results of an original study (Brandt et al., 2014). In the case of this research however, the replication fulfils an additional and critical purpose – assessing the efficacy of the experimental design from the New Zealand context. In

both cases, the closeness of replication must be determined in order to establish a level of confidence in the design utility and accuracy of the ensuing results. This review assesses the extent to which the replication achieves its goals by addressing elements of both consistency and divergence in addition to other considerations.

Replication Consistency: Materials and Procedure

To minimise variability inherent to conceptual replications it is important to follow, as closely as possible, to the methods employed in the original study. A key strength of this replication is its adherence to the materials and procedure of the original studies. In line with Brandt and colleagues (2014) recipe for a convincing replication, principal authors from the demographic shift manipulation studies (Craig & Richeson, 2014a; Outten et al., 2012) were contacted and both provided original stimulus materials for review and adaptation to the present study.

Conceptually, the two original studies examined the same underlying construct, however, there were differences in methodological design. In Outten and colleagues' (2012) future condition, two pie charts were included – one displayed present-day demographics and the other depicted the ethnic shift future condition. Both pie charts only contained two colours: one for the white majority and one for all ethnicities combined. Craig and Richeson (2014a) did not include a present-day pie chart and each ethnicity was differentiated by its own unique colour. After comparing the materials, Study 1a of this research was modelled after the experimental manipulation of Craig and Richeson (2014a) who incorporated the news article and accompanying pie chart into their design.

While certain elements required modification (e.g., content and formatting of the articles and charts were modified from the US versions to reflect New Zealand ethnic groups, immigration trends, and demographic projections), the procedure, instructions, scale usage,

and exclusion criteria were all faithfully reproduced from the original studies¹⁹. In this respect, Study 1a presents a compelling case for its validity, but additional criteria must be fulfilled to represent a truly close replication.

Replication Divergence: Subject Pool and Survey Method

Another key consideration in assessing replication quality is to examine the participant samples used across the studies as results may be strongly influenced by participant individual level differences rather than experimental design (Brandt et al., 2014; Westfall et al., 2015). While all participants in the studies were members of each country's dominant population majority, a major point of divergence between this research and the original studies relates to participant samples and method of survey delivery.

Outten and colleagues (2012), Craig and Richeson (2014a), and participants in Study 1a were all drawn from convenience samples, however, no two sample pools were alike. While participants for this research were recruited through advertisements and direct contact (via in person or through email) and received no compensation, the original studies used either student samples (who received course credit) or Amazon Mechanical Turk (MTurk; received financial compensation). In terms of replicability, such deviations can undermine the accuracy of the study and unsuccessfully measure the targeted theoretical construct (Peterson & Merunka, 2014; Sears, 1986).

Beyond the dissimilarities in sampling method, another major difference between the present and original studies relates to the method of survey administration. Study 1a from this research and Craig and Richeson (2014a) both used online surveys, however, Outten and

¹⁹ The outlying participant in Study 1a was removed to remain consistent with Craig and Richeson (2014a) exclusion criteria based on Tukey (1977), however, this author favoured retaining this participant using the revised interquartile range of 2.2 proposed by Hoaglin and Ingelwicz (1987). In addition, the analysis was re-run with the excluded participants. No differences were found between the two analyses.

colleagues (2012) experiment was a laboratory based pencil-and-paper study. While the question of equivalence in methodology arises (see Noyes & Garland, 2008), the issue appears to be less divided than the debate over convenience sampling and a majority of studies indicate that online and pencil-and-paper studies are highly comparable (e.g., Lonsdale, Hodge, & Rose, 2006; Riva, Teruzzi, & Anolli, 2004). Where response differences do occur, the heightened level of anonymity associated with online surveys may impact participants propensity to provide socially desirable responses – particularly on socially sensitive topics (Vosylis, Žukauskienė, & Malinauskienė, 2012; Ward, Clark, Zabriskie, & Morris, 2014).

Other Considerations: Statistical Power

Having high statistical power is a key ingredient in Brandt and colleagues' replication recipe as "underpowered replication attempts may incorrectly suggest original effects are false positives" (2014, p. 220). A lack of statistical power can be related to having a low sample size, a small effect, or a combination of both elements. Recalling the results of Study 1a, while the interactions for negative emotions of anger and fear were not significant, the level of negative emotions were shifted in the same direction as in Outten and colleagues' (2012) US sample. NZ Europeans felt more anger and fear towards minorities and less anger towards their own ingroup in the future condition than in the present day. This may indicate that, while the manipulation of demographic information had an impact on perceptions of intergroup emotion, the experiment was statistically underpowered and failed to detect the significant effect (type II error; Button et al., 2013). Post hoc exploration using G*Power 3 statistical power analysis program (Faul, Erdfelder, Lang, & Buchner, 2007) identified that the number individuals who participated in Study 1a would not have been adequate to capture potentially small yet significant effects associated with the negative emotions of anger or fear.

Appendix B

Descriptive Statistics of the Feelings Thermometer Measures of Study 1b and Study 2

Table 8

NZ Europeans' Warmth Towards Specific Ethnic Groups in New Zealand in Study 1b

	Time condition			
	Present-day		Future minority-majority	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<u>Ethnic Group</u>				
NZ Europeans	6.83	1.41	6.71	1.51
Māori	6.00	1.64	5.84	1.77
Immigrants in general	5.31	1.86	5.25	1.74
Pacific Islanders	5.78	1.45	5.90	1.63
Asians in general	4.88	1.73	4.82	2.06
Chinese	4.78	1.77	4.71	2.07
Indians	4.90	1.71	4.73	1.97
Arabs	4.64	1.78	4.52	1.89

Table 9

NZ Europeans' Warmth Towards Specific Ethnic Groups in New Zealand in Study 2

	Experimental condition			
	NZ European-majority		Minority-majority	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<u>Ethnic Group</u>				
NZ Europeans	5.75	1.23	5.72	1.34
Pacific Islanders	5.36	1.45	5.23	1.46
Māori	5.29	1.38	5.22	1.55
Immigrants in general	4.81	1.33	4.85	1.43
Asians in general	4.75	1.59	4.44	1.71
Chinese	4.65	1.56	4.35	1.80
Arabs	4.48	1.57	4.21	1.79

Appendix C

Supplementary Table of Intergroup Emotion Items from Study 2

Table 10

Paired Samples t-Test Comparing Emotion Items for NZ Europeans and Minorities by Experimental Condition

Experimental condition	Emotion	Target group	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
NZ European-majority	Annoyed	NZ Europeans	126	2.40	2.61	2.25	*
		Minorities	126	1.90	2.24		
	Resentful	NZ Europeans	126	1.69	2.19	.78	.44
		Minorities	126	1.56	2.00		
	Angry	NZ Europeans	126	1.93	2.31	1.91	.06
		Minorities	126	1.51	2.13		
	Fearful	NZ Europeans	126	1.35	2.01	2.10	*
		Minorities	126	1.72	2.05		
	Scared	NZ Europeans	126	1.44	1.95	.46	.65
		Minorities	126	1.52	1.82		
	Frightened	NZ Europeans	126	1.33	2.01	1.35	.18
		Minorities	126	1.56	2.05		
	Pity	NZ Europeans	126	1.52	2.10	5.81	***
		Minorities	126	3.01	2.91		
	Sympathetic	NZ Europeans	126	2.63	3.07	10.37	***
		Minorities	126	5.68	2.88		
	Compassion	NZ Europeans	126	4.57	3.28	6.74	***
		Minorities	126	6.23	2.65		
Minority-majority	Annoyed	NZ Europeans	130	2.24	2.63	.79	.43
		Minorities	130	2.00	2.51		
	Resentful	NZ Europeans	130	1.32	1.87	.08	.93
		Minorities	130	1.30	1.92		
	Angry	NZ Europeans	130	1.70	2.27	1.10	.28
		Minorities	130	1.43	2.07		
	Fearful	NZ Europeans	130	1.05	1.59	2.93	**
		Minorities	130	1.46	1.91		
	Scared	NZ Europeans	130	.92	1.31	3.64	***
		Minorities	130	1.42	2.04		
	Frightened	NZ Europeans	130	1.03	1.60	2.86	**
		Minorities	130	1.42	2.01		
	Pity	NZ Europeans	130	1.25	1.75	6.57	***
		Minorities	130	2.68	2.60		
	Sympathetic	NZ Europeans	130	2.83	3.13	8.84	***
		Minorities	130	5.79	3.07		
	Compassion	NZ Europeans	130	5.18	3.50	3.39	**
		Minorities	130	6.22	2.84		

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Appendix D

Paper Version of Online Surveys for Study 1a, Study 1b, and Study 2

Study 1a and Study 1b IPRP Participant Information Sheet

Thank you for your interest in this study. Please read this information before deciding whether or not to take part. If you decide to participate, thank you. If you decide not to take part, thank you for considering our request.

What is the purpose of this research?

- This research examines perceptions about changes to the demographic makeup of a nation.
- This online survey is interested in your opinions and perceptions of changing population demographics in New Zealand.

Who is conducting this research?

- Jason Lescelius is a Masters student in the Centre for Applied Cross-Cultural Research at Victoria University of Wellington. Dr. Taciano Milfont is responsible for supervising this project.
- This research has been approved by the School of Psychology Human Ethics Committee under delegated authority of Victoria University of Wellington's Human Ethics Committee (Approved 09/01/2017; Application number: 23852)

What is involved if you agree to participate?

- If you agree to take part in this study, you will read some information about the demographic makeup of New Zealand and complete an online questionnaire asking you about your opinion on the information.
- It is anticipated that the study will take no more than 10 minutes to complete.
- During the research you are free to withdraw at any point before your questionnaire has been completed, however in order to receive IPRP credit you must complete the study in its entirety.
- For completing this study, you will receive 0.5 hours of IPRP credit for your participation.

Privacy and confidentiality

- As you are taking part in this study for IPRP credit, your participation will not be anonymous. Your name and student ID will be used to properly allocate your course credit for successful completion of the study.
- Once your IPRP credit is allocated to you, your data will be de-identified and no longer linked to you.
- Your de-identified data will be kept indefinitely.
- You will never be identified in this research project or in any other presentation or publication. The information you provide will be coded by number only.
- In accordance with the requirements of some scientific journals and organisations, your data – without identifying details – may be shared with other competent researchers.
- Data without identifying details may also be used in other, related studies, which would require separate ethics approval. No other such research has been approved at this time.

What will happen to the information you provide?

- The overall findings will be part of a Masters thesis that will be submitted for assessment. The overall findings may be submitted for publication in a scientific journal and presented at scientific conferences.
- If you would like to know the results of this study, they will be posted on the Centre website: <http://www.victoria.ac.nz/cacr>.
- If you have any further questions regarding this study please contact us via email.

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Human Ethics Committee information

If you have any concerns about the ethical conduct of the research you may contact the Victoria University HEC Convener: Associate Professor Susan Corbett. Email susan.corbett@vuw.ac.nz or telephone +64-4-463 5480.

Study 1a Community Participant Information Sheet

Thank you for your interest in this study. Please read this information before deciding whether or not to take part. If you decide to participate, thank you. If you decide not to take part, thank you for considering our request.

What is the purpose of this research?

- This research examines perceptions about changes to the demographic makeup of a nation.
- This online survey is interested in your opinions and perceptions of changing population demographics in New Zealand.

Who is conducting this research?

- Jason Lescelius is a Masters student in the Centre for Applied Cross-Cultural Research at Victoria University of Wellington. Dr. Taciano Milfont is responsible for supervising this project.
- This research has been approved by the School of Psychology Human Ethics Committee under delegated authority of Victoria University of Wellington's Human Ethics Committee (Approved 09/01/2017; Application number: 23852)

What is involved if you agree to participate?

- If you agree to take part in this study, you will read some information about the demographic makeup of New Zealand and complete an online questionnaire asking you about your opinion on the information.
- It is anticipated that the study will take no more than 10 minutes to complete.
- During the research you are free to withdraw at any point before your questionnaire has been completed.

Privacy and confidentiality

- Your participation will be anonymous and all data will be kept indefinitely.
- You will never be identified in this research project or in any other presentation or publication. The information you provide will be coded by number only.
- In accordance with the requirements of some scientific journals and organisations, your data may be shared with other competent researchers.
- Data may also be used in other, related studies, which would require separate ethics approval. No other such research has been approved at this time.

What will happen to the information you provide?

- The overall findings will be part of a Master's thesis that will be submitted for assessment. The overall findings may be submitted for publication in a scientific journal and presented at scientific conferences.
- If you would like to know the results of this study, they will be posted on the Centre website: <http://www.victoria.ac.nz/cacr>.
- If you have any further questions regarding this study please contact us via email.

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Study 1a and Study 1b Present-day Newspaper Article

1. Newspaper article

Please take a few minutes to read the following article:

Statistics New Zealand Releases New Estimates of the Nation's Population by Ethnicity

By: S. Roberts

November 1, 2016

Statistics New Zealand has recently released its annual estimates of the current national population. These annual estimates give information about the resident population broken down by age, sex, and ethnicity.

According to the new estimates, Kiwis who identify themselves as European New Zealanders comprise roughly 68% of the nation's population. The remaining 32% of the population is split between Māori (14%), Pacific (7%), Asian (11%), and all other ethnic categories (1%).

The latest figures are estimated from Statistics New Zealand's 2013 annual census. The census, which is conducted every five years, provides government and communities current information needed to plan investments and services.

Mark Mather, a demographer with Statistics New Zealand explains, "The census helps us keep pace with the nation's ever-increasing demands for timely and relevant data about population characteristics. This information has long-lasting value for policy and decision-making in areas ranging from the private sector to the national and local governments."

Source: Statistics New Zealand

Study 1a and Study 1b Future Condition Newspaper Article

1. Newspaper article

Please take a few minutes to read the following article:

In a Generation, Ethnic Minorities May Be New Zealand's Majority

By: S. Roberts

November 1, 2016

Statistics New Zealand has recently released its annual projections for the national population. According to these projections, ethnic and racial minorities will comprise a majority of the nation's

population in a little more than a generation, a transformation that is occurring much faster than anticipated just a few years ago.

The projections calculate that by 2063, New Zealanders who identify themselves as Māori, Asian, Pacific, Middle Eastern, Latin American, or African will together outnumber European New Zealanders.

One major contributor to this shift comes from the nation's open immigration policy. The number of new migrants, especially from Asian countries such as China, India, and the Philippines, has risen sharply over the past several years and is expected to continue in the foreseeable future. Another significant contributor to the projected ethnic shift comes from higher birthrates among racial and ethnic minorities. Māori and Pacific population growth is expected to increase while the number of babies born to European New Zealand mothers is projected to decrease.

Mark Mather, a demographer with Statistics New Zealand explains, "This information has long-lasting value for policy and decision-making in areas ranging from the private sector to national and local governments. No other country has experienced such rapid ethnic change. What's happening now in terms of increasing ethnic diversity is unprecedented."

Study 1a Survey Questions

2. Questions about the newspaper article

Based on the information provided, please answer the following questions:

What was the purpose of this article?

What year was identified in the article?

What was the estimated proportion of all ethnic minorities highlighted in the article?

How well do the statistics from the article support the claims made in this article?

Extremely Unsupportive	Somewhat Unsupportive	Slightly Unsupportive	Neutral	Slightly Supportive	Somewhat Supportive	Extremely Supportive
1	2	3	4	5	6	7

How persuasive was this article?

Not at all Persuasive	Not Persuasive	Not Very Persuasive	Neutral	Slightly Persuasive	Somewhat Persuasive	Very Persuasive
1	2	3	4	5	6	7

3. Emotion

Next, we're interested in people's opinions which can fall on a spectrum. There are no right or wrong answers. Based on the information presented in the article, please respond to the following questions by choosing the number that best reflects your opinion: 1 = "not at all" to 11 = "completely"

To what extent does the information make you feel the following emotion towards ethnic minorities in New Zealand?

	not at all								completely			
Pity	1	2	3	4	5	6	7	8	9	10	11	
Annoyed	1	2	3	4	5	6	7	8	9	10	11	
Fearful	1	2	3	4	5	6	7	8	9	10	11	
Resentful	1	2	3	4	5	6	7	8	9	10	11	
Scared	1	2	3	4	5	6	7	8	9	10	11	
Sympathetic	1	2	3	4	5	6	7	8	9	10	11	
Angry	1	2	3	4	5	6	7	8	9	10	11	
Compassionate	1	2	3	4	5	6	7	8	9	10	11	
Frightened	1	2	3	4	5	6	7	8	9	10	11	

To what extent does the information make you feel the following emotion towards European New Zealanders?

	not at all								completely			
Pity	1	2	3	4	5	6	7	8	9	10	11	
Annoyed	1	2	3	4	5	6	7	8	9	10	11	
Fearful	1	2	3	4	5	6	7	8	9	10	11	
Resentful	1	2	3	4	5	6	7	8	9	10	11	
Scared	1	2	3	4	5	6	7	8	9	10	11	
Sympathetic	1	2	3	4	5	6	7	8	9	10	11	
Angry	1	2	3	4	5	6	7	8	9	10	11	
Compassionate	1	2	3	4	5	6	7	8	9	10	11	
Frightened	1	2	3	4	5	6	7	8	9	10	11	

4. Intergroup questions

Still based on the information presented in the article, please choose the number that best reflects your opinion: 1 = “Strongly Disagree” to 7 = “Strongly Agree”.

1	2	3	4	5	6	7
Strongly Disagree	Somewhat Disagree	Slightly Disagree	Neutral	Slightly Agree	Somewhat Agree	Strongly Agree

I would be completely comfortable in a social setting (such as a dance club or bar) where there were very few people from my ethnic group.	1 2 3 4 5 6 7
I would be completely comfortable dating someone from a different ethnic group (if I was single).	1 2 3 4 5 6 7
Please indicate “5” as your response to this question.	1 2 3 4 5 6 7
It would bother me if my child married someone from a different ethnic background.	1 2 3 4 5 6 7
I would prefer to live in a neighbourhood with people of my same ethnic origin.	1 2 3 4 5 6 7
If I were living with others in a house or an apartment, I would be more comfortable if my roommates were from my same ethnic background.	1 2 3 4 5 6 7
I would rather work alongside people of my same ethnic origin.	1 2 3 4 5 6 7
I support policies promoting more immigration to New Zealand.	1 2 3 4 5 6 7

Study 1b Survey Questions**2. Questions about the newspaper article**

Based on the information provided, please answer the following questions:

What was the purpose of this article?

What year was identified in the article?

What was the estimated proportion of all ethnic minorities highlighted in the article?

How well do the statistics from the article support the claims made in this article?

Extremely Unsupportive	Somewhat Unsupportive	Slightly Unsupportive	Neutral	Slightly Supportive	Somewhat Supportive	Extremely Supportive
1	2	3	4	5	6	7

How persuasive was this article?

Not at all Persuasive	Not Persuasive	Not Very Persuasive	Neutral	Slightly Persuasive	Somewhat Persuasive	Very Persuasive
1	2	3	4	5	6	7

3. Emotion

Next, we're interested in people's opinions which can fall on a spectrum. There are no right or wrong answers. Based on the information presented in the article, please respond to the following questions by choosing the number that best reflects your opinion: 1 = "not at all" to 11 = "completely"

To what extent does the information make you feel the following emotion towards ethnic minorities in New Zealand?

	not at all								completely			
Pity	1	2	3	4	5	6	7	8	9	10	11	
Annoyed	1	2	3	4	5	6	7	8	9	10	11	
Fearful	1	2	3	4	5	6	7	8	9	10	11	
Resentful	1	2	3	4	5	6	7	8	9	10	11	
Scared	1	2	3	4	5	6	7	8	9	10	11	
Sympathetic	1	2	3	4	5	6	7	8	9	10	11	
Angry	1	2	3	4	5	6	7	8	9	10	11	
Compassionate	1	2	3	4	5	6	7	8	9	10	11	
Frightened	1	2	3	4	5	6	7	8	9	10	11	

To what extent does the information make you feel the following emotion towards European New Zealanders?

	not at all								completely			
Pity	1	2	3	4	5	6	7	8	9	10	11	
Annoyed	1	2	3	4	5	6	7	8	9	10	11	
Fearful	1	2	3	4	5	6	7	8	9	10	11	
Resentful	1	2	3	4	5	6	7	8	9	10	11	
Scared	1	2	3	4	5	6	7	8	9	10	11	
Sympathetic	1	2	3	4	5	6	7	8	9	10	11	
Angry	1	2	3	4	5	6	7	8	9	10	11	
Compassionate	1	2	3	4	5	6	7	8	9	10	11	
Frightened	1	2	3	4	5	6	7	8	9	10	11	

4. Intergroup questions

Still based on the information presented in the article, please choose the number that best reflects your opinion: 1 = “Strongly Disagree” to 7 = “Strongly Agree”.

1	2	3	4	5	6	7
Strongly Disagree	Somewhat Disagree	Slightly Disagree	Neutral	Slightly Agree	Somewhat Agree	Strongly Agree

I would be completely comfortable in a social setting (such as a dance club or bar) where there were very few people from my ethnic group.	1 2 3 4 5 6 7
I would be completely comfortable dating someone from a different ethnic group (if I was single).	1 2 3 4 5 6 7
Please indicate “5” as your response to this question.	1 2 3 4 5 6 7
It would bother me if my child married someone from a different ethnic background.	1 2 3 4 5 6 7
I would prefer to live in a neighbourhood with people of my same ethnic origin.	1 2 3 4 5 6 7
If I were living with others in a house or an apartment, I would be more comfortable if my roommates were from my same ethnic background.	1 2 3 4 5 6 7
I would rather work alongside people of my same ethnic origin.	1 2 3 4 5 6 7
I support policies promoting more immigration to New Zealand.	1 2 3 4 5 6 7

This is the final section of questions relating to the information presented in the article.

5. Feelings Thermometer

Please rate your feelings of WARMTH towards the following groups using the "feeling thermometer scale" for each group.

	Feel LEAST WARM towards this group				Feel MOST WARM toward this group			
NZ Europeans	1	2	3	4	5	6	7	
Māori	1	2	3	4	5	6	7	
Asians in general	1	2	3	4	5	6	7	
Pacific Islanders	1	2	3	4	5	6	7	
Immigrants in general	1	2	3	4	5	6	7	
Arabs	1	2	3	4	5	6	7	
Chinese	1	2	3	4	5	6	7	
Indians	1	2	3	4	5	6	7	

Study 1a and Study 1b IPRP Participant Debriefing Sheet

Thank you for participating in this study.

The main goal of this study was to examine perceptions of changes in the demographic makeup of New Zealand, and whether these perceptions may be distinct for different ethnic groups in the country.

Research conducted in the United States and Canada have shown that changes to the demographic makeup of a nation can influence attitudes and perceptions between different ethnic groups (e.g., Craig & Richeson, 2014; Outten, Schmitt, Miller, & Garcia, 2012). For members of a country's dominant ethnic group, the impending loss of the population majority has been associated with increased negative emotions felt towards minority groups, increased feelings of sympathy towards their own in-group, and resulted in a greater preference for interactions within their own in-group.

Using Census New Zealand definitions, 'New Zealand Europeans' represent the largest ethnic grouping in the nation. Therefore, those who identify as New Zealand European were recruited for this study in order to determine if, like in the US or Canada, ethnic shifts to the demographics New Zealand would impact their attitudes or perceptions towards diversity. Participants reviewed information relating to either current demographic of New Zealand or future projections of a more diverse country where the overall proportion of minority groups outnumber the current largest group, New Zealand Europeans. Regardless of the information reviewed, participants answered the same questions relating to their perceptions of the material received. The goal of this study was to answer this question, "Does losing population majority of New Zealand have any impact on the attitudes or perceptions of the dominant ethnic group?" As this study is exploratory in nature, no predictions have been made for this research question.

The present study is the first part of a larger project which aims to capture New Zealanders' perceptions towards increasing diversity within their nation today and in the future. The goal of the project is to investigate the emotional, psychological, and behavioural implications relating to current demographic changes and potential major shifts to come.

Thank you once again for your participation in this study. The research project is being conducted by Jason Lescelius, a Masters student, and his supervisor, Dr. Taciano L. Milfont, from the Centre for Applied Cross-Cultural Research, Schools of Psychology, Victoria University of Wellington. Results of the study will be posted in approximately five months on the Centre website: <http://www.victoria.ac.nz/cacr>.

If you have any questions regarding your involvement in this study, or have issues regarding the research in general, please do not hesitate to contact me via email at Jason.Lescelius@vuw.ac.nz.

Reference

- Craig, M. A., & Richeson, J. A. (2014). More diverse yet less tolerant? How the increasingly diverse racial landscape affects white Americans' racial attitudes. *Personality and Social Psychology Bulletin*, 40, 750-761.
- Outten, H. R., Schmitt, M. T., Miller, D. A., & Garcia, A. L. (2012). Feeling threatened about the future: Whites' emotional reactions to anticipated ethnic demographic changes. *Personality and Social Psychology Bulletin*, 38, 14-25.

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The main goal of this study was to examine perceptions of changes in the demographic makeup of New Zealand, and whether these perceptions may be distinct for different ethnic groups in the country.

Research conducted in the United States and Canada have shown that changes to the demographic makeup of a nation can influence attitudes and perceptions between different ethnic groups. For members of a country's dominant ethnic group, the impending loss of the population majority has been associated with increased negative emotions felt towards minority groups, increased feelings of sympathy towards their own in-group, and resulted in a greater preference for interactions within their own in-group.

Using Census New Zealand definitions, 'New Zealand Europeans' represent the largest ethnic grouping in the nation. Therefore, those who identify as New Zealand European were recruited for this study in order to determine if, like in the US or Canada, ethnic shifts to the demographics New Zealand would impact their attitudes or perceptions towards diversity. Participants reviewed information relating to either current demographic of New Zealand or future projections of a more diverse country where the overall proportion of minority groups outnumber the current largest group, New Zealand Europeans. Regardless of the information reviewed, participants answered the same questions relating to their perceptions of the material received. The goal of this study was to answer this question, "Does losing population majority of New Zealand have any impact on the attitudes or perceptions of the dominant ethnic group?" As this study is exploratory in nature, no predictions have been made for this research question.

The present study is the first part of a larger project which aims to capture New Zealanders' perceptions towards increasing diversity within their nation today and in the future. The goal of the project is to investigate the emotional, psychological, and behavioural implications relating to current demographic changes and potential major shifts to come.

Thank you once again for your participation in this study. The research project is being conducted by Jason Lescelius, a Masters student, and his supervisor, Dr. Taciano L. Milfont, from the Centre for Applied Cross-Cultural Research, Schools of Psychology, Victoria University of Wellington. Results of the study will be posted in approximately five months on the Centre website:

<http://www.victoria.ac.nz/cacr>.

If you have any questions regarding your involvement in this study, or have issues regarding the research in general, please do not hesitate to contact me via email at Jason.Lescelius@vuw.ac.nz.

Study 2 IPRP Participant Information Sheet

Thank you for your interest in this study. Please read this information before deciding whether or not to take part. If you decide to participate, thank you. If you decide not to take part, thank you for considering our request.

What is the purpose of this research?

This research examines perceptions about changes to the demographic makeup of a nation.

This online survey is interested in your opinions and perceptions of changing population demographics in New Zealand.

Who is conducting this research?

Jason Lescelius is a Masters student in the Centre for Applied Cross-Cultural Research at Victoria University of Wellington. Dr. Taciano Milfont is responsible for supervising this project.

This research has been approved by the School of Psychology Human Ethics Committee under delegated authority of Victoria University of Wellington's Human Ethics Committee (Approved 15/09/2017; Application number: 25095)

Who can participate in this study?

To participate in this study you must be:

Be born in New Zealand

Be 18 years or older

Ethnically identify as New Zealand European

What is involved if you agree to participate?

If you agree to take part in this study, you will read some information about the demographic makeup of New Zealand and complete an online questionnaire asking you about your opinion on the information and on diversity in New Zealand.

It is anticipated that the study will take no more than 15-20 minutes to complete.

During the research you are free to withdraw at any point before your questionnaire has been completed, however in order to receive IPRP credit you must complete the study in its entirety – providing responses to all questions.

For completing this study, you will receive 0.5 hours of IPRP credit for your participation.

Privacy and confidentiality

As you are taking part in this study for IPRP credit, your participation will not be anonymous. Your name and student ID will be used to properly allocate your course credit for successful completion of the study.

Once your IPRP credit is allocated to you, your data will be de-identified and no longer linked to you.

Your de-identified data will be kept indefinitely.

You will never be identified in this research project or in any other presentation or publication. The information you provide will be coded by number only.

In accordance with the requirements of some scientific journals and organisations, your data – without identifying details – may be shared with other competent researchers.

Data without identifying details may also be used in other, related studies, which would require separate ethics approval. No other such research has been approved at this time.

What will happen to the information you provide?

The overall findings will be part of a Masters thesis that will be submitted for assessment. The overall findings may be submitted for publication in a scientific journal and presented at scientific conferences.

If you would like to know the results of this study, they will be posted in approximately 6 months on the Centre website: <http://www.victoria.ac.nz/cacr>.

If you have any further questions regarding this study please contact us via email.

Jason Lescelius: Jason.Lescelius@vuw.ac.nz

MSc Student in Cross-Cultural Psychology
School of Psychology
Victoria University of Wellington

Dr. Taciano Milfont:

taciano.milfont@vuw.ac.nz

Research Supervisor
School of Psychology
Victoria University of Wellington

Human Ethics Committee information

If you have any concerns about the ethical conduct of the research you may contact the Victoria University HEC Convener: Associate Professor Susan Corbett. Email susan.corbett@vuw.ac.nz or telephone +64-4-463 5480.

Study 2 NZ European-majority Condition Newspaper Article

1. Newspaper article

Please take a few minutes to read the following article:

Statistics New Zealand Predicts Stability in the New Zealand Population

By: S. Roberts

1 June, 2017

Statistics New Zealand has recently released its annual projections for the national population. According to these projections, the demographic composition of the nation will remain relatively stable over the next 50 years.

By 2063, it is estimated that Kiwis who identify themselves as European New Zealanders will comprise roughly 62% of the nation's population. The remaining 39% of the population will be split between Māori (15%), Pacific (9%), Asian (13%), and all other ethnic categories (1%).

The latest figures were calculated by analysing new data from Statistics New Zealand's 2016 annual Census. The census, which is conducted every five years, provides government and communities current information needed to plan investments and services. Mark Mather, a demographer with Statistics New Zealand explains, "The census helps us keep pace with the nation's ever-increasing demands or timely and relevant data about population characteristics. This information has long-lasting value for policy and decision-making in areas ranging from the private sector to the national and local governments."

Source: Statistics New Zealand

Study 2 Minority-majority Condition Newspaper Article

1. Newspaper article

Please take a few minutes to read the following article:

In a Generation, Ethnic Minorities May Be New Zealand's Majority

By: S. Roberts

1 June, 2017

Statistics New Zealand has recently released its annual projections for the national population. According to these projections, ethnic and racial minorities will comprise a majority of the nation's population in a little more than a generation, a transformation that is occurring much faster than anticipated just a few years ago.

The projections calculate that by 2063, New Zealanders who identify themselves as Māori, Asian, Pacific, Middle Eastern, Latin American, or African will together outnumber European New Zealanders.

One major contributor to this shift comes from the nation's open immigration policy. The number of new migrants, especially from Asian countries such as China, India, and the Philippines, has risen sharply over the past several years and is expected to continue in the foreseeable future. Another significant contributor to the projected ethnic shift comes from higher birthrates among racial and ethnic minorities. Māori and Pacific population growth is expected to increase while the number of babies born to European New Zealand mothers is projected to decrease.

Mark Mather, a demographer with Statistics New Zealand explains, "This information has long-lasting value for policy and decision-making in areas ranging from the private sector to national and local governments. No other country has experienced such rapid ethnic change. What's happening now in terms of increasing ethnic diversity is unprecedented."

Study 2 Survey Questions

2. Description of New Zealand society in the year 2063

Thank you for taking time to read the article.

In this section, we would like you to reflect on the information you have just read and to imagine what New Zealand will be like in the year 2063. Think about what the people of New Zealand will be like (their values, traits, etc.) and also how New Zealand society would function in general.

When you are ready, please briefly describe your image of the society in the section below.

3. Perceptions of New Zealand society in the year 2063

Next, we are interested in seeing how your vision of New Zealand in the year 2063 compares to your perception of the society today.

Keeping your vision of New Zealand in 2063 in mind, please rate whether each of the following aspects of society would be more or less common than in New Zealand today.

Aspect of society	Much less common than NZ society today					No different from NZ society today			Much more common than NZ society today		
Education levels	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Violent crime	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Poverty	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Volunteering	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Disease	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Economic development	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Pollution	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Scientific progress	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Extent of community groups	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Theft	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Unemployment levels	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Extent of parks and natural reserves	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5

4. Perceptions of New Zealanders in the year 2063

In the next two sections we are still interested in your perceptions of future New Zealand, however we would like you to think about the people living in the future society.

Please rate how typical the following characteristics would be for a New Zealander living in the year 2063 compared to New Zealanders today.

Personal characteristic	Much less typical than today					Same as today			Much more typical than today		
Caring	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Lazy	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Unfriendly	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Honest	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Competent	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Unskilled	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Capable	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Immoral	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Sincere	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Warm	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Assertive	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Insensitive	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Trustworthy	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Unethical	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Considerate	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5

5. Values of New Zealanders in the year 2063

Please rate how important the following values would be to New Zealanders in 2063 when compared to New Zealanders of today.

Personal value	Much less important					Same as today			Much more important		
Equality (equal opportunity for all)	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Self-discipline (self-restraint, resistance to temptation)	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Pleasure (gratification of desires)	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Wealth (material possessions, money)	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Honesty (genuine, sincere)	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Enjoying life (enjoying food, sex, leisure, etc.)	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Social justice (correcting injustice, care for the weak)	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Freedom (freedom of action and thought)	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Family security (safety for loved ones)	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5

Ambitious (hardworking, aspiring)	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Respect for tradition (preservation of time-honoured customs)	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
An exciting life (stimulating experiences)	-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5

Thank you for completing the first half of our survey.

In this next section, we are interested in your views on current diversity and multiculturalism in New Zealand.

With an increasingly diverse population in New Zealand, figuring out how to manage intergroup relations among diverse racial and ethnic groups has become an important topic of national interest. Multiculturalism is one way of managing growing diversity in this country by calling for the recognition, celebration, and support for greater cultural diversity in New Zealand.

6. Multicultural action

Please rate the extent to which you agree or disagree with the following statements.

1	2	3	4	5	6	7
Strongly Disagree	Somewhat Disagree	Slightly Disagree	Neutral	Slightly Agree	Somewhat Agree	Strongly Agree

I would boycott companies that have been shown to exploit ethnic minority groups.	1 2 3 4 5 6 7
To reflect increasing diversity, foreign language courses should be mandatory in all schools.	1 2 3 4 5 6 7
It would be acceptable to increase taxes in order to fund new migrant settlement initiatives.	1 2 3 4 5 6 7
Cultural-competency and conflict resolution courses should be mandatory in the work place.	1 2 3 4 5 6 7
Some Parliamentary seats should be reserved for underrepresented migrant ethnic groups.	1 2 3 4 5 6 7
Street signs should include other languages (e.g. Chinese) to accommodate non-English speakers.	1 2 3 4 5 6 7
I would join a public demonstration or protest to support the cause of an ethnic minority group.	1 2 3 4 5 6 7

If a local or general election was called, I would vote for a candidate at least in part because he or she was in favour of ethnically inclusive policies.	1 2 3 4 5 6 7
I would accept changes to NZ public holidays to avoid religious affiliation (Easter and Christmas) or alternatively replace them with non-Christian alternatives (e.g. Eid-UI-Adha [the feast of sacrifice in Islam]).	1 2 3 4 5 6 7
There should be stricter laws which would require employers to have ethnically diverse workforces that more accurately reflect the national population.	1 2 3 4 5 6 7

In the final part of the survey we would like to ask about your attitudes and perceptions towards different groups in New Zealand.

Please note that there are no correct or incorrect answers – we are interested in people's opinions which can fall on a spectrum.

7. Intergroup questions

Please rate the extent to which you agree or disagree with the following statements.

1	2	3	4	5	6	7
Strongly Disagree	Somewhat Disagree	Slightly Disagree	Neutral	Slightly Agree	Somewhat Agree	Strongly Agree

I would be completely comfortable in a social setting (such as a dance club or bar) where there were very few people from my ethnic group.	1 2 3 4 5 6 7
I would be completely comfortable dating someone from a different ethnic group (if I was single).	1 2 3 4 5 6 7
Please indicate "5" as your response to this question.	1 2 3 4 5 6 7
It would bother me if my child married someone from a different ethnic background.	1 2 3 4 5 6 7
I would prefer to live in a neighbourhood with people of my same ethnic origin.	1 2 3 4 5 6 7
If I were living with others in a house or an apartment, I would be more comfortable if my flatmates were from my same ethnic background.	1 2 3 4 5 6 7
I would be comfortable in the workplace even if there were very few people from my ethnic group.	1 2 3 4 5 6 7

8. Warmth towards groups in New Zealand

This next section is about specific minority groups in New Zealand. Please rate your feelings of WARMTH towards the following groups using the “feeling thermometer scale” for each group.

A score of ‘MOST WARM’ would indicate perceiving the group as very favourable and ‘LEAST WARM’ would indicate very unfavourable.

	Feel LEAST WARM towards this group					Feel MOST WARM towards this group	
NZ Europeans	1	2	3	4	5	6	7
Māori	1	2	3	4	5	6	7
Asians in general	1	2	3	4	5	6	7
Pacific Islanders	1	2	3	4	5	6	7
Arabs	1	2	3	4	5	6	7
Immigrants in general	1	2	3	4	5	6	7
Chinese	1	2	3	4	5	6	7

Thank you for continuing this far.

You are about to begin the final section of the survey. These last few questions are more generalized and do specify any particular ethnic minority group.

9. Attitudes

Please rate the extent to which you agree or disagree with the following statements.

	Strongly disagree Neither agree nor disagree Strongly agree						
Some ethnic minorities have values that are not compatible with New Zealand values.	1	2	3	4	5	6	7
New Zealanders should be open to changing some aspects of their culture in order to adjust for the cultures of new ethnic groups.	1	2	3	4	5	6	7
Certain ethnic minority groups do not appreciate the New Zealand way of life.	1	2	3	4	5	6	7
I am afraid that some ethnic minorities make our society more dangerous for ordinary people.	1	2	3	4	5	6	7
Ethnic diversity helps to make our society stronger and more unified.	1	2	3	4	5	6	7
Some ethnic minorities are a drain on the country's welfare services.	1	2	3	4	5	6	7
The more political power minority groups obtain, the more difficult it is for New Zealanders already living here.	1	2	3	4	5	6	7
Ethnic diversity helps to make our society safer and less dangerous.	1	2	3	4	5	6	7
Some ethnic minorities have a negative effect on the New Zealand economy.	1	2	3	4	5	6	7

Please rate the extent to which you believe your ethnic group benefits from diversity

	Strongly disagree					Strongly agree		
My ethnic group will benefit from increasing diversity in New Zealand.	1	2	3	4	5	6	7	

10. Emotion

Finally, based on your opinion, please respond to the following questions by choosing the number that best reflects your opinion: 1 = “not at all” to 11 = “completely”

To what extent do you feel the following emotion towards ethnic minorities in New Zealand?

	not at all								completely		
Accepting	1	2	3	4	5	6	7	8	9	10	11
Annoyed	1	2	3	4	5	6	7	8	9	10	11
Fearful	1	2	3	4	5	6	7	8	9	10	11
Resentful	1	2	3	4	5	6	7	8	9	10	11
Scared	1	2	3	4	5	6	7	8	9	10	11
Sympathetic	1	2	3	4	5	6	7	8	9	10	11
Angry	1	2	3	4	5	6	7	8	9	10	11
Compassionate	1	2	3	4	5	6	7	8	9	10	11
Frightened	1	2	3	4	5	6	7	8	9	10	11

To what extent do you feel the following emotion towards European New Zealanders?

	not at all								completely		
Accepting	1	2	3	4	5	6	7	8	9	10	11
Annoyed	1	2	3	4	5	6	7	8	9	10	11
Fearful	1	2	3	4	5	6	7	8	9	10	11
Resentful	1	2	3	4	5	6	7	8	9	10	11
Scared	1	2	3	4	5	6	7	8	9	10	11
Sympathetic	1	2	3	4	5	6	7	8	9	10	11
Angry	1	2	3	4	5	6	7	8	9	10	11
Compassionate	1	2	3	4	5	6	7	8	9	10	11
Frightened	1	2	3	4	5	6	7	8	9	10	11

Study 2 IPRP Participant Debriefing Sheet

Thank you for participating in this study – “When Majority Groups Become the Minority” (RM# 25095).

The main goal of this study was to examine perceptions of changes in the demographic makeup of New Zealand, and whether these perceptions differ towards different groups.

Research conducted in the United States and Canada have shown that changes to the demographic makeup of a nation can influence attitudes and perceptions between different ethnic groups (e.g., Craig & Richeson, 2014; Outten, Schmitt, Miller, & Garcia, 2012). For members of a country’s dominant ethnic group, the impending loss of the population majority has been associated with increased negative emotions felt towards minority groups, increased feelings of sympathy towards their own in-group, and resulted in a greater preference for interactions within their own in-group.

Using Census New Zealand definitions, ‘New Zealand Europeans’ represent the largest ethnic group in the nation. Current figures from Statistics New Zealand project that European New Zealanders are expected to account for 54% to 56% of New Zealand’s population by 2038 and, by the late 21st century, European New Zealanders may no longer be the population majority of the country. Therefore, those who identify as New Zealand European were recruited for this study to determine if, like in the US or Canada, ethnic shifts to the demographics New Zealand would impact their views towards diversity.

In order to investigate this idea, deception was utilised in this study. Participants read about a future scenario in the year 2063 that either: (1) inaccurately predicted that ethnic diversity in New Zealand would be similar to today, or (2) was more in line with current projections which indicate that European New Zealanders were no longer the population majority of the country. Regardless of the information reviewed, participants answered the same questions about their perceptions of the future. For this study, the use of deception was necessary in order to strike at the heart of the research question, “Does losing population majority of New Zealand have any impact on the attitudes or perceptions of the dominant ethnic group?” By forming two experimental conditions where the ethnic make of the future were similar to today and future scenario where the current dominant ethnic group has lost its majority, we are hoping to be able to provide new insights into this question.

The present study is the second part of a larger project which aims to capture New Zealanders’ perceptions towards increasing diversity within their nation today and in the future. The goal of the project is to investigate the emotional, psychological, and behavioural implications relating to current demographic changes and potential major shifts to come. As this study is exploratory in nature, no predictions have been made for this research question.

Thank you once again for your participation in this study. The research project is being conducted by Jason Lescelius, a Masters student, and his supervisor, Dr. Taciano L. Milfont, from the Centre for Applied Cross-Cultural Research, Schools of Psychology, Victoria University of Wellington. Results of the study will be posted in approximately five months on the Centre website:

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If you have any questions regarding your involvement in this study, or have issues regarding the research in general, please do not hesitate to contact me via email at Jason.Lescelius@vuw.ac.nz.

Reference

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