CONDITIONAL LOVE: SINGAPOREANS' PURSUIT OF BASIC PSYCHOLOGICAL NEEDS SATISFACTION INFLUENCES EVALUATION OF IMMIGRANTS

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Declaration

I hereby declare that this thesis is my original work and it has been written by me in its entirety.

I have duly acknowledged all the sources of information which have been used in the thesis.

This thesis has also not been submitted for any degree in any university previously.

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Lee Peiwei
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Abstract

Increasing xenophobia among Singaporeans is becoming a pressing concern. The current research, consisting of two studies, uses both Integrated Threat and Basic Psychological Needs Theory to understand what fuels Singaporeans' attitudes towards immigrants. In both studies, participants rated the extent to which immigrants are seen as (i) realistic and symbolic threats (i.e., intergroup threats), (ii) instrumental to their need for autonomy, relatedness, and competency, and (iii) warm and competent (i.e., attitudes towards immigrants). Study 1 utilised a sample of undergraduates, while Study 2 recruited participants from the general population of Singapore. Two findings were consistent across both studies: (1) The more immigrants' hindered locals' competence needs satisfaction, the more competent locals perceived immigrants to be. (2) The more immigrants' hindered locals' relatedness needs satisfaction, the less warm immigrants were perceived to be and this relationship was mediated by the amount of symbolic threat locals perceived immigrants to pose.

Keywords: Basic psychological needs, intergroup threats, warmth and competence

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Introduction

Across the world, attitudes towards immigrants is fast becoming a divisive issue, making it a topic pertinent to study now more than ever. As *The Economist* observed, "the new political divide that matters is less and less between left and right, and more and more between open and closed" ("The new political divide," 2016). This new political fault line has already proven itself to be a key deciding factor in swaying political votes in various countries. The topic of attitudes towards immigration was one of the main talking points that played a part in the outcomes of two major political events in 2016, the United States of America's presidential election and Brexit. Locally, Singaporeans' hostility towards immigrants has also driven immigrant reduction policies, which has been implemented at the expense of Singapore's economic health (Lee, 2014). Therefore, considering the large impact that attitudes towards immigrants have in recent years, studying what drives these attitudes is now more important than ever.

Goal pursuit research shows that our attitudes towards entities in our social environments, including people, depend on how well objects support our goals (Fitzsimons & Fishbach, 2010; Fitzsimons & Shah, 2008; Ferguson & Bargh, 2004). Inspired by these findings, the current research seeks to understand how Singaporeans' goal pursuits influence their evaluation of immigrants. According to Basic Psychological Needs Theory, humans have an innate desire to satisfy their needs for autonomy, competence, and relatedness (Deci, & Ryan, 2002). As such, the current research examines whether Singaporeans' beliefs that immigrants aid them in their pursuit of basic psychological needs would predict Singaporeans' attitudes towards immigrants.

Singapore: A Migrant Society

At the core, Singapore is essentially a migrant society, birth out of British colonial interests in the nineteenth century (Matthew & Soon, 2015). Today, most Singaporeans are

descendants of immigrants that settled on the island then. However, Singaporeans have increasingly built a strong sense of national identity since independence, fostered by founding myths and shared experiences (Matthew & Soon, 2015). These founding myths that have slowly formed the "Singaporean way of life" include respect for diversity, orderliness, and meritocracy (Matthews & Zhang, 2016) Singaporeans also bond over shared experiences that define the Singaporean identity, such as going through the same public education system, compulsory conscription for males, enjoying diverse cuisines (Matthew & Soon, 2015), and practicing odd habits like using tissue paper packets to reserve seats at hawker centres.

Over the past few decades, the number of immigrants in Singapore has grown substantially and the non-resident population has increased at an alarming rate from 18.7% to 25.7% within just a single decade (Yeoh & Lin, 2012). Singapore is now in a situation, where a large part of the population is not born or bred in Singapore and is unfamiliar with the "Singaporean way of life". Hence, this influx of immigrants has created an inevitable ingroup-outgroup scenario between Singaporeans and immigrants.

Singaporeans' attitudes towards immigrants and immigration have gotten increasingly negative in response to this influx of immigrants. Local surveys reported that Singaporeans observed the largest increase in xenophobic attitudes in the five years running up to 2014 (Mathews, 2014) and that 2 in 3 Singaporeans strongly supported foreign worker reduction policies (2 in 3 Singaporeans polled strongly support foreign worker reduction policies: survey, 2012). Anti-immigrant sentiments have also grown more rampant on the online space in recent years (Tai, 2014). Offline, about 3000 Singaporeans gathered to form the largest protest Singapore has seen in decades to rally against pro-immigration policies (Mokhtar, 2013; Ramesh, 2013).

Understanding what drives Singaporeans' attitudes towards immigrants is more urgent now than ever as Singapore is starting to see how these attitudes can have an impact

on social cohesion and policy-making. In a bid to appease Singaporeans, the government has reduced foreign labour passes and established regulations regarding employment of foreign labour (Cheam & Heng, 2013; Toh, 2013; Au-Yong, 2015). Unfortunately, this tightening of immigration may come at the expense of Singapore's economic health in the long run (Lee, 2014). Tensions between Singaporeans and immigrants also threatened social cohesion in Singapore across various occasions. For instance, displeased Singaporeans' threatened to protest at Orchard Road against Filipinos' plans to celebrate their independence day at Ngee Ann City because they saw the allowing of immigrants to celebrate their independence on an iconic street in Singapore to be an insult to Singaporeans (Wong, 2014).

Singaporeans' Attitude Towards Immigrants

One might expect Singaporeans' attitudes towards immigrants to be a positive one, since immigrants are useful in ensuring the economic survival of a Singapore that is facing a declining demographic trend (Liu, 2014). Being physically small and lacking in natural resources, Singapore relies heavily on her human resource to ensure economic growth and survival. (Chan, 1971). When Singapore's fertility rate nose-dived way below the replacement level of 2.1 near the 1980s, it became a cause for a major concern (Sun, 2012). This decline in Singapore's population growth coincided with her rapid economic growth in the 1980s (Lepoer, 1989), leaving Singapore with the problem of a dwindling workforce struggling to meet the demand. Hence, Singapore had to rely on both lowly- and highly-skilled foreign labour to fill the gap and meet the needs of specific employers, making them integral to Singapore's economy (Chia, 2011).

While Singaporeans approve of the intake of immigrants for the purpose of boosting the economy, many blame them for the dilution of Singapore culture, soaring cost of living, lack of jobs, and even overcrowding (Tan & Koh, 2010; Lima, 2014; Baker, 2015).

Immigrants' instrumentality and Intergroup Threat Theory

Social psychologists have proposed various theories over the years on how we evaluate others, which are from social groups different the ones we are in. One of the most recent and leading theories of prejudice is the Intergroup Threat Theory (ITT), a revision by Stephen and his colleagues (2009) to the earlier version of Integrated Threat Theory. In the context of ITT, the group that one belongs to is called the "ingroup", while the group that others belong to is called the "outgroup"

ITT revolves around the idea that our attitudes towards immigrants is dependent on their instrumentality towards our goals. According to ITT, we hold negative attitudes towards outgroups that we perceive to threaten us because we perceive them to be in a position to potentially harm us. In contrast, intergroup relations are improved if both groups see themselves as complementary to each other in their efforts to achieve similar or complementary goals (Stephan & Stephan, 2009). In short, we are hostile towards groups we feel threatened by because of their ability and potential to hinder our goals (Esses, Jackson & Armstrong, 1998).

In the original version of this theory, intergroup threats include four types of threat – realistic threat, symbolic threat, intergroup anxiety, and negative stereotypes (Stephan & Stephan, 2000). However, the theory was later refined because recent evidence showed that both negative stereotypes and intergroup anxiety are predictors of realistic and symbolic threats rather than the threats themselves (Stephan et al., 2002). As a result, the theory now proposes that intergroup group threats only includes realistic threat and symbolic threat.

Realistic and Symbolic threats both deal with different kinds of threats to the interests of the group and the more you perceive your group's interests as being threatened, the more likely you will evaluate the other group negatively (Kendall, 1998). Since both types of threats deal with different aspects of threat, each of them has its own predictive power too (Stephan & Renfro, 2002).

Realistic Threat. Realistic threat refers to a concern about the physical harm of a loss of resources and is defined as threat to a group's "safety, economy, politics, health or well-being" (Kendall, 1998). Its central hypothesis is that negative outgroup attitudes are a result of two groups competing for scarce resources in a way where the success of one will threaten the well-being of the other (Sherif & Sherif, 1969). These resources may involve safety, money, employment or resources involving power and control, like political power and dominance (Bobo, 1988).

The more the ingroup perceives the outgroup as posing a realistic threat, the more negative attitudes they will hold towards the outgroup. In several countries, the more citizens felt economically threatened due to poor economic conditions, the more negative they felt towards immigrants (McLaren 2003; Quillian, 1995). Likewise, when Canadians were led to believe that immigrants posed a realistic threat by "stealing" their jobs, their attitudes towards immigrants turned hostile (Esses, Dovidio, Jackson, & Armstrong, 2001).

Symbolic Threat. While threats to tangible resources can be considered realistic, threats to group-esteem or self-esteem can be considered symbolic (Stephan, Ybarra & Morrison, 2009). Symbolic threat, the second domain of intergroup threat, is defined as threats to morals, values, beliefs, standards, and traditions of a group (Esses, Haddock, & Zanna, 1993; Stephan & Stephan, 2000). The ingroup will feel symbolically threatened when they perceive their worldview, culture or cultural practice as being undermined by the outgroup's values or cultural practices. As a result, the ingroup will evaluate the outgroup more negatively.

Negative attitudes towards the outgroup increases when important values to the ingroup are being threatened. For instance, when Whites perceived Blacks' values as incongruent with their own, they gave a relatively more negative evaluation of Blacks than

Whites who felt that Blacks were supportive of their values (Biernat, Vescio & Theno, 1996). Another study also indicated that the wider the perceived gap between ingroup and outgroup values, the more negative the outgroup attitudes (Dunbar, Saiz, Stela, & Saez, 2000).

Intergroup Threats in The Current Research

Local research has proven to be largely in line with ITT. Much of locals' ill-feelings towards immigrants stem from the perception that immigrants are "stealing" white-collared jobs from Singaporeans (Lima, 2014). Though many of these perceptions are contrary to empirical evidence showing that immigrants are mostly filling jobs Singaporeans are not interested in, these perceptions has resulted in the Singaporeans' negative attitudes towards immigrants (Matthews & Zhang, 2016). Singaporeans also feel symbolically threatened, citing immigrants as the reason for Singapore's diluting culture (Lima, 2014).

Even though ITT has been an influential framework that has inspired many research, this research believes that a fuller understanding of the relationship between attitudes towards immigrants and instrumentality needs to take into account how immigrants satisfy or impede locals' goals.

Instrumentality and Goal Pursuit

Growing evidence suggests that the goals we hold affect how we evaluate objects and people. Lewin (1935) argued that our evaluation of environmental objects (including people) changes depending on the extent to which they support or hinder our goals pursuit.

Environmental objects that are deemed to be instrumental to our goals will be evaluated positively, while those that are perceived to obstruct the fulfilment of our goals are evaluated negatively (Smith & Ellsworth, 1985). For example, when we are thirsty and are seeking to quench our thirst, we will rate goal-congruent objects (e.g., water and juice) more positively than goal-incongruent objects, such as tree or phone (Ferguson & Bargh, 2004).

This process of shifting our evaluation of objects according to how well they serve our current goals is an adaptive one. We tend to be more sensitive to environmental cues that signal opportunities to help us achieve our goals (Gardner, Pickett, Jefferis, and Knowles, 2005) We evaluate goal-consistent objects more positively to make it more approach-friendly because this facilitates goal-consistent action, which ultimately helps us achieve our goals (Ferguson & Bargh, 2004).

The same process of evaluation happens when we evaluate others. Research shows that goals have the ability to change our evaluation of our significant other, our evaluation of our relationships, and even our behavioural tendencies (Fitzsimons & Fishbach, 2010). Participants with the goal of keeping an active lifestyle evaluated significant others, who they felt will help them keep active, more positively and more readily drew closer to them (Fitzsimons & Shah, 2008). We also tend to rate people who are able to help us achieve our academic goals as interpersonally closer when we are striving for academic excellence (Fitzsimons & Fishbach, 2010).

In summary, our evaluation of objects and people is dependent on how instrumental they are to the goals that we are relevant to us. This begs the question: What goals are relevant?

Basic Psychological Needs Theory

Basic Psychological Needs Theory (BPNT), a sub theory of Self-Determination Theory, postulates that human beings have three inborn basic needs that we constantly strive to satisfy: autonomy, competence, and relatedness (Deci, & Ryan, 2002). According to BPNT, that three basic needs are the prerequisite for surviving and are regarded as the nutrients for psychological growth, physical and psychological well-being, and healthy relationships (Deci, & Ryan, 2000).

The satisfaction of these psychological needs depends on the social environment that one is in (Ntoumanis, Edmunds, & Duda, 2009). The influx of immigrants in Singapore is definitely a change in the environment for locals and might, therefore, impact locals' three basic psychological needs satisfaction.

Autonomy. The need for autonomy is the desire to be the source of one's own behaviour and to participate in the activities chosen by the self (Ntoumanis et al., 2009). When we experience autonomy, we act out of our own free will in accord with abiding values and interests (Vansteenkiste, Niemiec & Soenens, 2010).

The presence of immigrants can either foster and or hinder locals' autonomy need satisfaction. For example, having immigrant domestic workers may help satisfy Singaporean parents' need for autonomy. Parents with domestic workers now have the additional option of participating in other activities (e.g., work or night out with friends), rather than "forced" to stay home to take care of their children. At the same time, having immigrants in Singapore may thwart locals' attempts to fulfil their needs for autonomy. Foreign workers have sometimes been blamed for the deterioration of public safety in Singapore (Yeoh & Lin, 2012) and Singaporeans may deem it unsafe to stay out late at night with an increased number of immigrant workers. Locals then lose the autonomy to go wherever they want, whenever they want, in fear of compromising their safety.

Relatedness. The need for relatedness is defined as individuals' longing to feel connected to others and belong (Baumeister & Leary, 1995). Again, having a large number of immigrants may thwart locals' need for relatedness. Due to the sudden influx of immigrants, the Singapore identity, which includes the usage of "Singlish", has been diluted (Vadaketh, 2012). The dwindling opportunity to use Singlish in their own country has left Singaporeans feeling disconnected, making Singapore feel less like home to them, resulting in a decrease sense of relatedness.

Competence. The need for competence refers to the need experience of effectiveness and efficacy in one's pursuits (White, 1959). People need to feel a certain amount of effectiveness and competency in their activities (Ryan, et al., 2008).

Similarly, having immigrants can make locals feel more or less competent. Consider the scenario, where a local student is pitted against foreign scholars, who are mostly high performing students invited to study in Singapore. Even though the concept of foreign scholars is not new to Singapore, the number of foreign scholars has increased at an unprecedented rate since the early 2000s after the government's plans to increase the total number of international students studying in Singapore to 150,000 in a short span of 10 years (Ng & Tan, 2010; Olds, 2007). By 2012, 2000 scholarships were given to foreign scholars at the undergraduate and pre-tertiary level every year (Yeoh & Lin, 2013). Putting a huge number of handpicked academically gifted students in the education system and artificially raising the average competency level may make local students feel incompetent. This is especially so for institutes that use bell curves to grade students. On the flip side, having foreign talents in Singapore can help facilitate knowledge-sharing, improving locals' expertise in their job areas. This can help Singaporeans feel more competent in their work, promoting their sense of competency.

Hence, this research would like to investigate if Singaporeans' attitudes towards immigrants will vary according to the extent to which immigrants' are instrumental to Singaporeans' pursuit of basic psychological needs satisfaction.

Basic Psychological Needs Theory and Integrated Threat Theory

To say that the components of each theory are independent of the components of the other theory might be oversimplifying matters. In fact, this research propose that not only do basic psychological needs satisfaction directly affect attitudes towards immigrants, they might also be antecedents of intergroup threat.

The founders of ITT have found a few antecedents of intergroup threat, like group identification, intergroup contact, and status inequalities (Stephan, Ybarra & Morrison, 2009). These antecedents influence the level of perceived intergroup threat and the outgroup attitudes through threat. Thus, intergroup threats are thought to mediate the relationship between these more distal variables and outgroup attitudes. For example, intergroup threats have been found to mediate the relationship between intergroup contact with attitudes towards outgroups (Stephan et al., 2000; Stephan & Renfro, 2002; Tausch, Tan, Hewstone, Kenworthy & Cairns, 2007), as well as the relationship between multicultural ideologies and immigrant attitudes (Ward and Masgoret, 2006).

The current study wishes to examine instrumentality of immigrants to locals' basic psychological needs satisfaction goals as antecedents of intergroup threats. As discussed previously, realistic threat is a threat to a group's general well-being, while symbolic threat is considered to be a threat to the self-esteem (Stephan et al., 2009). Basic psychological needs are also often linked to well-being and self-esteem. Empirical evidence supports this by showing that needs satisfaction can predict outcomes related to general well-being, such as wellness across the lifespan and longevity (Williams, Niemiec, Patrick, Ryan, & Deci, 2009b; Williams et al., 2009a; Grolnick, Bridges & Fredi, 1984; Vansteenkiste et al., 2007; Kasser & Ryan, 1999). Those that reported more psychological need satisfaction also felt better about themselves and had higher self-esteem (Deci et al., 2001; Tödtling, 2013).

As such, another question this research explores is whether the relationship between immigrants' instrumentality to locals' needs satisfaction goals and their attitudes towards immigrants is mediated by intergroup threats.

Attitudes Towards Immigrants

Semantic differentials and the attitudes thermometer are popular measures of attitudes (e.g., Hummert, Garstka, O'Brian, Greenwald & Mellott, 2002; Imamura, Zhang & Harwood,

2011). However, these univariate measures might give us a lopsided understanding of attitudes. This is because they usually only measure how warm one finds a certain social group, tapping into only one aspect of attitudes – the warmth dimension.

Stereotype Content Model (SCM) holds the view that the different perceptions we hold of others is best understood by using the two dimensions central to social perception – warmth and competence (Fiske, Cuddy, Glick & Xu, 2002). Numerous research on social perception across different subfields lend strong support to this proposition (Asch, 1946; Rosenburg, Nelson, & Vivekananthan, 1968; Freedman, Leary, Ossorio, & Goffey, 1951; Wiggins, 1979; Fiske, Xu, Cuddy, & Glick, 1999; Fiske, Cuddy, Glick, & Xu, 2002). Competence concerns task functioning, the possession of skills, talents, and capability, while warmth pertains to functioning in social relations and involves qualities such as kindness, friendliness, and sincerity (Abele, Cuddy, Judd & Yzerbyt, 2008; Cuddy, Fiske & Glick, 2008).

This model is appropriate for this research as the combination of the two dimensions is also closely linked to the idea of instrumentality. SCM proposes that our perception of others is often mixed or ambivalent and groups can be perceived to be high in one dimension, but low in the other (Fiske et al., 2002). How we interact with them and whether we perceive others to be high or low on each of the dimension is dependent on to what extent they facilitate or hinder our goals (Cuddy et al., 2008).

When a successful group's positive outcomes enhance us or does not detract from us, we will perceive them to be high-competence/high-warmth (Cuddy et al., 2008). We perceive them to be high on both dimensions because their success either facilitates our goal attainment or, at least, does not hinder it. As a result, we tend to be motivated to increase contact with these groups and cooperate with them in order to facilitate our own goals (Cuddy et al., 2008).

We perceive a group to be low-competence/low-warmth when we feel that a group is draining valuable resources that could otherwise be used for our goal attainment (Cuddy et al., 2008). We experience contempt towards them because their mere existence detracts from our goal pursuits. Thus, we tend to either desire to expel them from the community or distance and neglect these groups (Cuddy et al., 2008).

Those groups that we see to have the ability and the intent to disrupt our goals, we evaluate them as high-competence/low-warmth (Cuddy et al., 2008). While contact with these groups is not desired, it is tolerated in order to facilitate our other goals. We engage in convenient cooperation with these groups when business is a usual and scapegoat them in times of stress (Cuddy et al., 2008).

Lastly, we regard those who have little ability and intent to obstruct our goals as low-competence/high-warmth (Cuddy et al., 2008). These groups elicit our sense of superiority over them and has little consequence to our goals. As such, we will either help them or be dismissive towards them (Cuddy et al., 2008).

Empirically, a survey done by IPS seem to suggest that a two-dimensional model might be more suitable for the Singapore context. When asked about immigrants in Singapore, two-thirds of Singaporeans felt that "the policy to attract more foreign talent will weaken Singaporeans' feeling of one nation, one people", while two-thirds of Singaporeans were also of the opinion that "the government is right to increase the number of foreigners working in Singapore if our economy needs it." (Tan & Koh, 2010). Singaporeans attitudes are not simplistic when it comes to immigrants. While they feel that immigrants are not warm or socially undesirable, they acknowledge that immigrants are economically essential and competent. These sentiments fit well with a two-dimensional model that is able to capture both locals' perception of immigrants' warmth and competence. As such, this study uses the

two-dimensions, warmth and competence, to measure attitudes towards immigrants because it is suitable, holistic, and useful in the context of this research.

Overview and Hypotheses

In a first attempt to study to study these three theories (BPNT, ITT and SCM) together, this study is largely exploratory in nature. Nonetheless, based on the literature review, the current research has two main hypotheses in response to the two research questions asked above to give this research a general direction.

The first hypothesis proposes that immigrants' instrumentality to locals' basic psychological needs satisfaction goals will predict locals' attitudes towards immigrants, above and beyond their perception of intergroup threats. The second hypothesis proposes that not only does immigrants' instrumentality to locals' basic needs satisfaction directly predict their attitudes towards immigrants, it will also predict attitudes indirectly through their perception of intergroup threats.

The current research will use two studies to test out these hypotheses. The first study uses university students as participants and participants are required to complete a questionnaire measuring all the variables of interest. Structural equation modelling will then be used to test the hypotheses and understand the relationship between variables. Mediation analyses will be done as well. The second study replicates the first, using the general population of Singaporeans as participants this time, to see if the results are consistent.

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Study 1

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Methods

Subjects. The subjects in study 1 are students from of National University of Singapore (NUS) taking part in this study as paid participants or to clear course requirements. The final sample for this study consists of 446 students, 344 females (77.1%) and 102 males (22.9%). The mean age of participants is 21.02 ($SD = 2.36$). All participants are Singaporeans

with 414 of them being Chinese (92.8%), 13 of them being Malay (2.9%), 10 of them being

Indian (2.2%), 3 being Eurasians (0.7%), and 6 of them being others (1.3%).

Procedure. Participants that participated in the study to clear their course

requirements were recruited through the school's Sona system. Paid participants were

recruited by through an advertisement of the study on the school's learning management

system, IVLE. Participants were then sent an email containing the link to a questionnaire they

were to complete. All participants were told that they were doing a survey that wants to

understand locals' perception of immigrants in Singapore. Upon completion of the

questionnaire, participants were either awarded 2 Research Program points or reimbursed

S$10.

Questionnaire. A questionnaire that included seven measures was used. Out of the

seven, two were used to measure locals' attitudes towards immigrants (Perception of warmth

and perception of competence). Another two measures were used to address the two variables

posited by ITT, realistic threat and symbolic threat, and are used to measure how much threat

locals perceive immigrants pose to them. The final three measures measure immigrants'

instrumentality to locals' three basic psychological needs satisfaction (Autonomy,

Relatedness, and Competency). Participants completed this questionnaire on an online survey

platform, Qualtrics.

Attitudes towards immigrant. Attitudes towards immigrants was measured via two

scales, the perception of warmth scale and the perception of competence scale, developed by

Fiske, Cuddy, Glick & Xu (2002). Participants responded to four questions measuring how

warm they perceive immigrants to be (e.g. "As viewed by society, how sincere are

immigrants?") and another five items measuring how competent they perceive immigrants to

be (e.g. "As viewed by society, how confident are immigrants?"). Participants responded by

answering each question with a number from 1 – 5, with 1 being "not at all" and 5 being "Extremely".

Perception of Intergroup Threat. This questionnaire used scales similar to the scales used by Stephan and colleagues (1999) to measure Singaporeans' perception of realistic and symbolic threats that immigrants pose. The questions were adapted to suit the Singaporean context. Participants were presented 16 statements that measure perceived realistic threat (e.g. "Immigrants create a shortage in housing for Singaporeans.") and 15 statements (e.g. "The values and beliefs of immigrants regarding work are basically quite similar to those of most Singaporeans") that measure perceived symbolic threat. Participants were then asked to rate the statements on the scale of 1 to 7, with 1 being "Strongly Disagree" and 7 being "Strongly Agree".

Immigrants' instrumentality to locals' basic psychological needs satisfaction. The present study adapts the Basic Needs Satisfaction in General Scale (BNSG-S) to measure how much locals perceive the presence of immigrants to affect their basic psychological needs satisfaction. The BNSG-S was developed so as to determine whether psychological needs were met (Deci, & Ryan, 2000). Even though the scale has been adapted to measure basic psychological needs satisfaction in various situations, such as sports or work places, no known study has used it in a context similar to the present study.

Participants were presented 14 statements that intend to measure how the presence of immigrants affect locals' satisfaction of their three basic psychological needs (autonomy, relatedness, and competency). Out of the 14 statements, 5 were used to measure autonomy need satisfaction (e.g. "Because of immigrants in Singapore, I feel like I am less free to decide for myself how to live my life."), 6 were used to measure relatedness need satisfaction (e.g. "Immigrants make Singapore feel less like home to me"), and 3 to measure competency need satisfaction (e.g. "I often feel less competent when I compare myself to immigrants").

Participants rated each statement on a scale of 1 to 7, with 1 being "Strongly Disagree" and 7 being "Strongly Agree".

Data analysis. The responses for all items of each variable were averaged to get a score for each of the seven variables. Structural equation modelling, using R studio, was used to conduct path analyses and test out the hypotheses.

To test our first hypothesis, Model 1 (see Figure 1 below) and Model 2 (see Figure 2 below) were compared. The purpose of this comparison is to test if immigrants' instrumentality on the three basic psychological needs (Autonomy, Relatedness and Competency) have any direct effect on attitudes towards immigrants (perception of warmth and perception of competence), above and beyond intergroup threats.

In Model 1, regression pathways and all correlations between the BPNT variables (Autonomy, Relatedness and Competency) and ITT variables (Realistic threat and Symbolic threat) were fixed to 0. The two outcome variables (perception of warmth and perception of competence) is regressed on only the ITT variables. In model 2, the two outcome variables are regressed on the five predictor variables (Realistic threat, Symbolic threat, Autonomy, Relatedness and Competency) and the correlations between them were free to vary. Hypothesis 1 will be supported if it is found that immigrants' instrumentality to locals' three basic psychological needs satisfaction have the power to predict attitudes towards immigrants, above and beyond intergroup threats.

To test out the second hypothesis, Model 2 and Model 3 (see figure 3) were compared. The purpose of this comparison is to build on the comparison between Model 1 and 2 to see if it is possible to differentiate the direct and indirect effects immigrants' instrumentality on locals' three basic psychological needs have on their attitudes towards immigrants.

The only difference between Models 2 and 3 is that Model 3 restricts all the regression pathways for the regression of the two ITT variables on the three BPNT variables to 0, while Model 2 does not. Model 2 is the only model that includes both indirect and direct effect between the three BPNT variables and the two outcome variables. As such, mediation analyses only be done within the model if Model 2 is found to be a significantly better model than Model 3 and if it is a well-fitted model. Bootstrapping will be used for the mediation analyses and indirect effects will only be considered significant if the 95% confidence interval does not include 0.

Chi-square difference test will be used for both models 1 and 3 are nested within Model 2. Correlation between perception of competence and perception of warmth will be fixed at 0 for all models, while the correlation between realistic threat and symbolic threat and the correlations among the three basic psychological needs will not be restricted.

Although it has been proposed by Fiske, Cuddy, Glick, and Xu (2002) that perception of warmth is negatively correlated to perception of competence, other research has found that this relationship between the two dimensions only occurs under very specific circumstances. Negative relationship between the two variables only occur when people are made to judge two different groups or people at the same time because the comparison of two groups leads to a compensatory effect (Judd, James-Hawkins, Yzerbyt & Kashima, 2005). The dimensions were also found to be independent of each other (Kervyn, Fiske, Yzerbyt, 2013). As such, since participants were only asked to judge one group in this study, the correlation between the two variables was restricted to 0 for all models in the analysis.

Although the two ITT variables, realistic threat and symbolic threat, tap distinct constructs (Bobo, 1983), they have been found to be strongly correlated in previous research (e.g., Renfro et al., 2006). Likewise, the three basic needs satisfaction variables should be highly correlated as well since they are actually three subscales taken from the BNSG-S. Past

research have found positive correlations between the subscales that range between $r = .46$

and .72 for autonomy and competence, $r = .33–.79$ for autonomy and relatedness, and r

$= .27–.80$ for relatedness and competence (Conroy & Coatsworth, 2007; Gagné, 2003;

Kashdan et al., 2009; Thøgersen-Ntoumani & Ntoumanis, 2007; Vansteenkiste, Lens & Deci,

2006). Hence, the correlations between realistic threat and symbolic threat and the

correlations among the three basic psychological needs were restricted for all models.
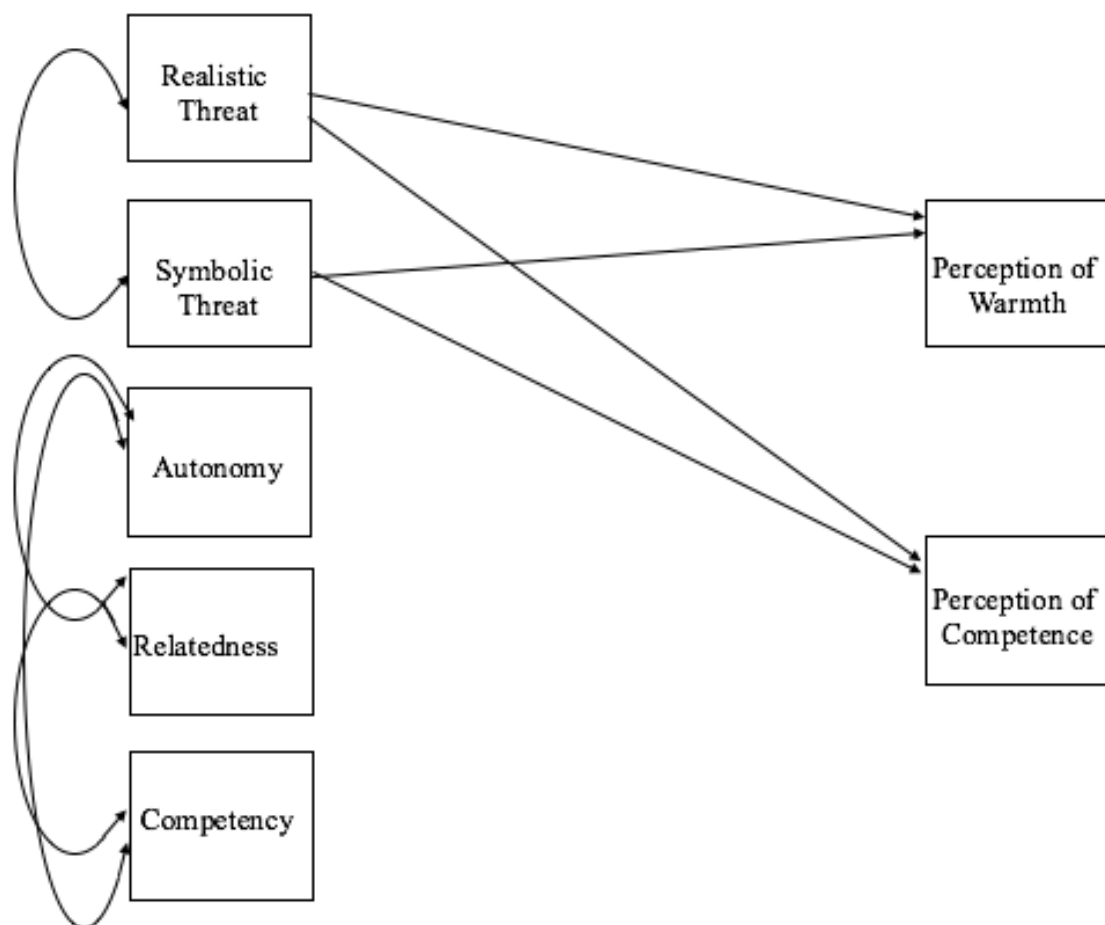
Figure 1. Model 1
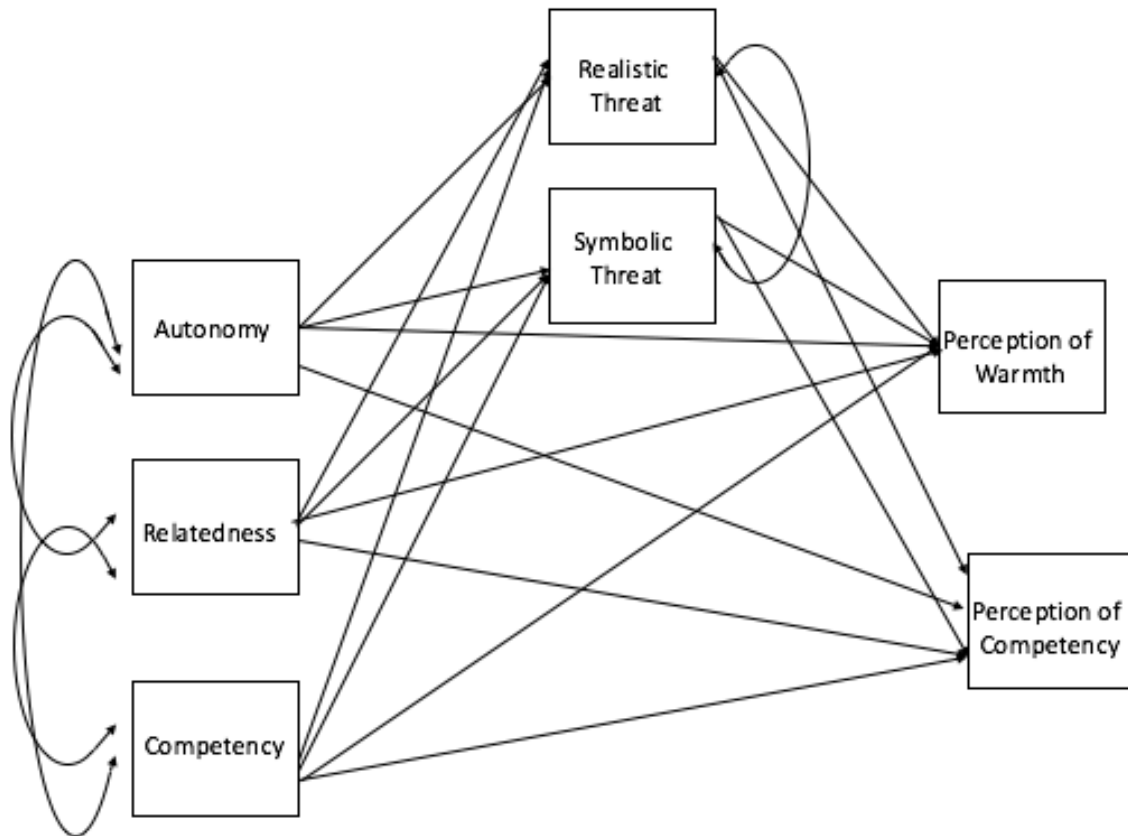
Figure 2. Model 2
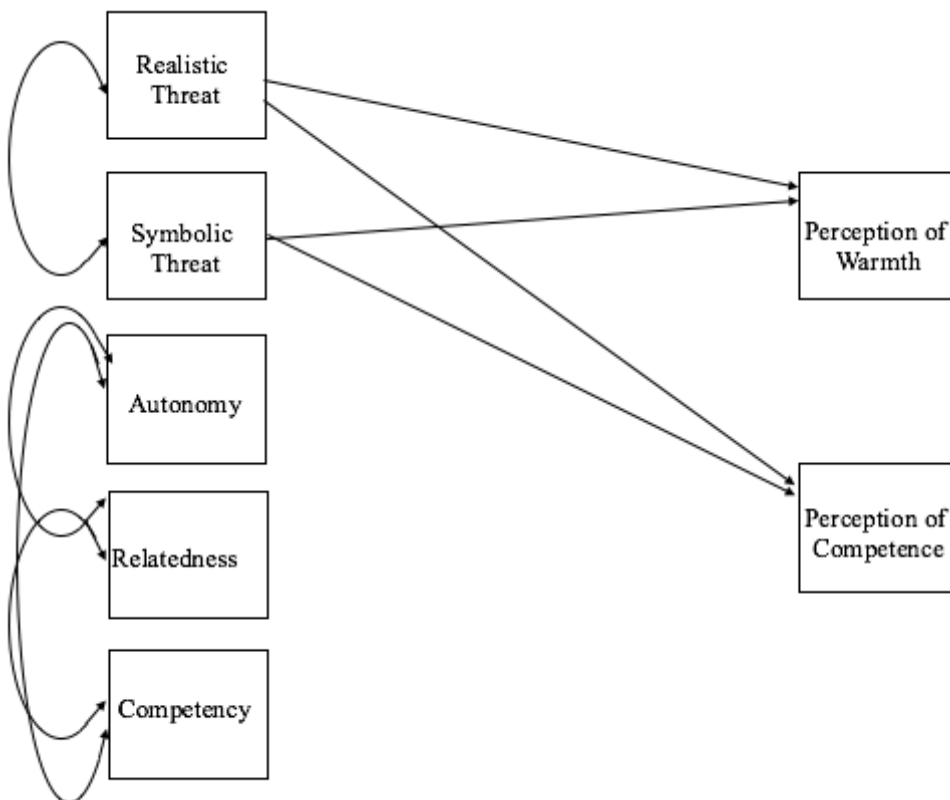
Figure 3. Model 3

Results

Descriptive Statistics. Table 1 below is a summary of the sample means, covariance and variance of all measures for this study.

Table 1.

Means, Covariance and variance of all measures.

Measures	Means	1	2	3	4	5	6	7
1. Perception of Competence	3.57	0.27						
2. Perception of Warmth	2.60	0.02	0.02					
3. Realistic Threat	3.77	0.07	-0.14	0.85				
4. Symbolic Threat	3.64	0.04	-0.18	0.54	0.65			
5. Autonomy	3.28	0.05	-0.12	0.51	0.40	1.00		
6. Relatedness	3.31	0.03	-0.18	0.64	0.59	0.67	1.19	
7. Competence	1.09	0.05	-0.04	0.21	0.16	0.22	0.20	0.14

N = 446

Reliability. Table 2 below is a summary of the reliability coefficient for each measure. Using Nunnally's (1978) rule of thumb, of $\alpha = .70$, most of the measures demonstrated a good level of internal consistency among its items. Only the perception of competence measure was marginally below the .70 threshold at $\alpha = .67$.

Table 2.
Reliability Analysis of scale

Measures	Number of items	Cronbach's Alpha
Autonomy	5	.74
Relatedness	6	.81
Competency	3	.73
Symbolic Threat	15	.88
Realistic Threat	15	.89
Perception of Warmth	4	.84
Perception of Competence	5	.67

N = 446

Model Fit. For the purpose of the reporting of model fits in this research, other than the chi-square test statistics, two other goodness-of-fit indices will be used. One will be an incremental fit index, Comparative fit index (CFI), and one will be a residual based index, Standardized root mean square residual (SRMR).

CFI compares the Chi-square value of the proposed model with the Chi-square value of the null model (Bentler, 1990). It also takes into account sample size (Byrne, 1998) and performs well even when sample size is small (Tabachnick and Fidell, 2007). Considering that the sample size for this study is relatively small, the CFI is an appropriate index to use. As a rule of thumb, a well-fitted model has an index of more than .90 (Lance, Butts & Michels, 2006).

SRMR is the square root of the difference between the residuals of the sample covariance matrix and the hypothesised covariance model. The SRMR is useful as it allows for a questionnaire to contain items with varying range of responses (Hooper, Coughlan & Mullen, 2008). Well-fitting models typically obtain values less than .05 (Byrne, 1998; Diamantopoulos and Siguaw, 2000), but values as high as 0.08 are deemed acceptable (Hu and Bentler, 1999).

According to Hu and Bentler's (1999) Two-Index Presentation Strategy, when both CFI and SRMR are presented together, the combination rule is that it is best for a model to yield a CFI of .96 or higher and a SRMR of 0.09 or lower.

Model 1 was fitted and results indicated that it fitted reasonably well with the data, χ^2 (16)= 859.96, $p<.001$, CFI = .316, SRMR = .338. R^2 for the perception of warmth was .113 and .025 for the perception of competence.

Model 2 was fitted and results suggest that it is a well-fitted model, $\chi^2(1)= 5.285$, $p=.022$, CFI = 1.00, SRMR = .018. R^2 was .114 for the perception of warmth, .089 for the perception of competence, .496 for symbolic threat, and .533 for realistic threat.

Model 3 was also fitted and the results showed that it was not a good fit, $\chi^2(7)=$ 421.80, $p<.001$, CFI = .500, SRMR = . 277. R^2 was .096 for the perception of warmth, .079 for the perception of competence, and 0 for realistic threat and symbolic threat.

Model Comparison. Upon running a comparison between Models 1 and 2, using chi-square difference test, results showed that Model 2 fitted the data significantly better than Model 1, $\Delta\chi^2 (15) = 848.05$, $p <.001$. ΔR^2 was .001 for perception of warmth and .064 for perception of competence. While the addition of the three BPNT variables did not do much to increase the amount of variance explained in perception of warmth (0.1%), it increased the variance explained in perception of competence by 6.4%. These results indicate immigrants' instrumentality to locals' basic psychological needs satisfaction is able to account for unique variance in their attitudes towards immigrants, over and above the two threats.

The two models, Model 2 and Model 3, were also compared using chi-square difference test and results showed that Model 2 fitted the data significantly better than Model 3, $\Delta\chi^2 (6) = 416.52$, $p <.001$. The three BPNT variables were also found to be responsible for explaining 49.6% of the variance in symbolic threat and 53.3% of the variance in realistic threat. These results suggest immigrants' instrumentality to locals' basic psychological needs satisfaction are antecedents of intergroup threats.

Mediation analyses. Mediation analyses of all the indirect paths between the three basic psychological needs and perception of warmth and competency through the two intergroup threats for Model 2 were done. Only 2 indirect paths were found to be significant. Relatedness predicted perception of warmth through perception of symbolic threat, with an indirect effect of -0.11 and a 95% confidence interval of -0.16 to -0.06. Competence also had an indirect effect on perception of warmth through symbolic threat with an indirect effect of -0.14 and a 95% confidence interval of -0.23 to -0.07.

      Path Analyses. The regression coefficients for each regression pathway for all models are presented in both figures and table forms below. Regression coefficients for Model 1 are presented in Figure 4 and Table 3. Likewise, regression coefficients for Model 2 are presented in Figure 5 and Table 4, while regression coefficients for Model 3 are presented in Figure 6 and Table 5.

      In Model 2, immigrants' instrumentality to locals' need for competency satisfaction significantly predicts locals' perception of immigrants' competence, over and above the other variables. Likewise, only perception of symbolic threat predicts locals' perception of immigrants' warmth, over and above the other four variables.

      Model 2 also showed that immigrants' instrumentality to locals' need for all three basic psychological significantly predicted perception of realistic threat, while only immigrants' instrumentality to locals' needs for competency and relatedness significantly predicted perception of symbolic threat, above and beyond the need for autonomy.
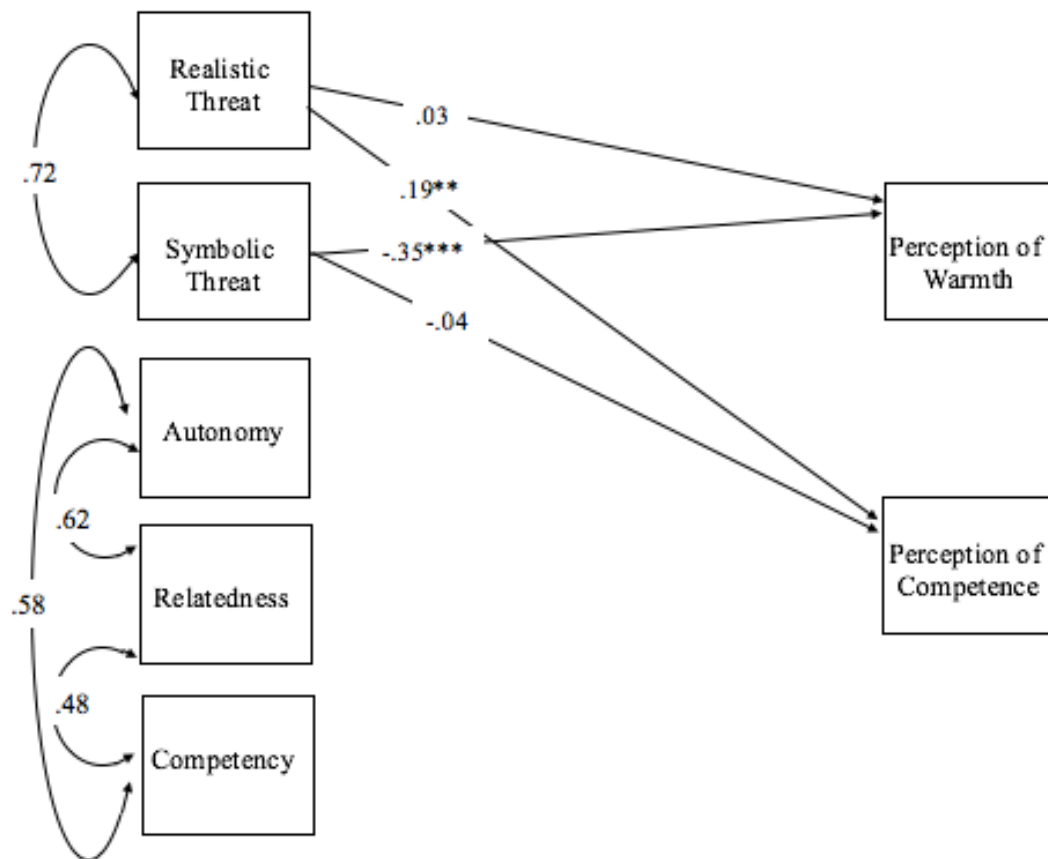
Note. *=p<.05, **= p < .01, ***=p<.001.

Figure 4. *Path Analysis Results for Model 1 for the NUS students sample (standardised solutions)*

Table 3.

Unstandardized, Standardized, and Significance Levels for Model 1 for the NUS students sample, as shown in figure 4 (Standard Errors in Parentheses).

Parameters	Estimates	Standardized	p
Symbolic Threat → Perception of Warmth	-.28(.05)	-.35	<.001
Realistic Threat → Perception of Warmth	.02(.05)	.03	.694
Symbolic Threat→ Perception of Competence	-.03(.04)	-.04	.536
Realistic Threat→ Perception of Competence	.10(.04)	.19	.006
N = 446			
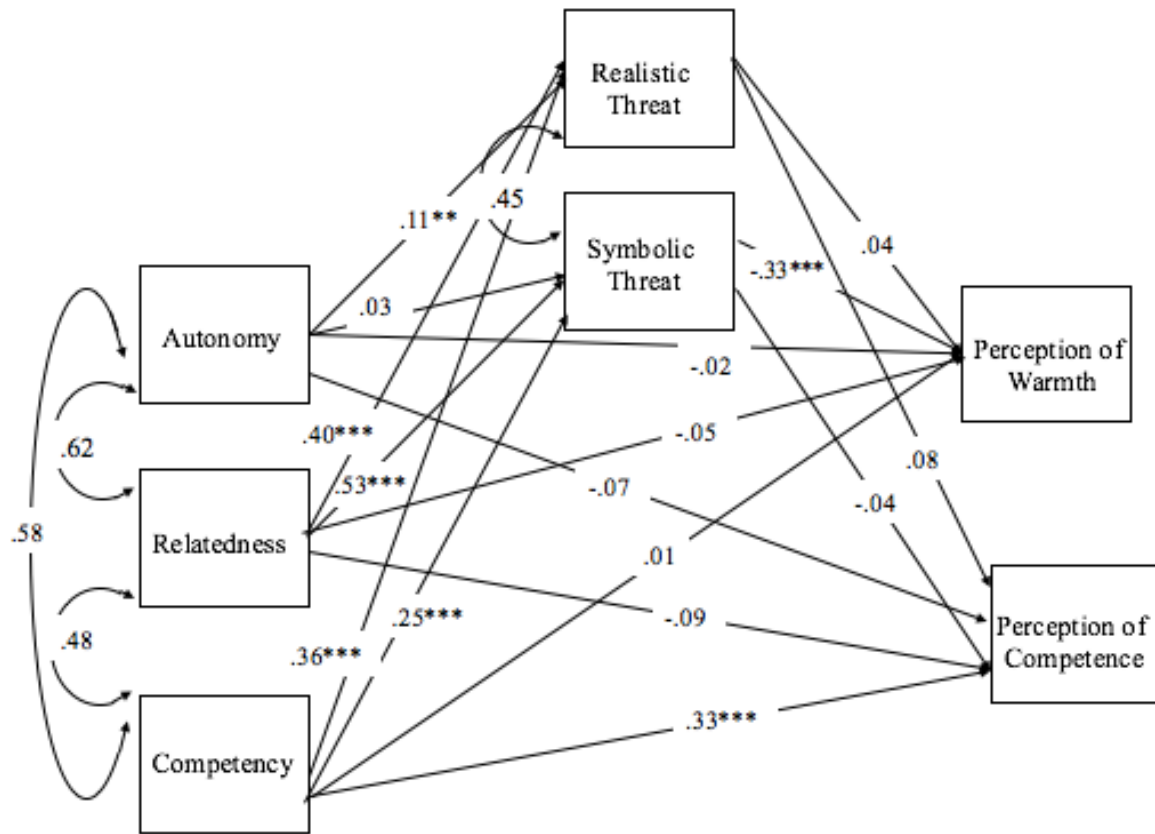
Note. *=p<.05, **= p < .01, ***=p<.001.

Figure 5. *Path Analysis Results for Model 2 for the NUS students sample (standardised solutions)*

Table 4.

Unstandardized, Standardized, and Significance Levels for Model 2 for the NUS students sample, as shown in Figure 5 (Standard Errors in Parentheses)

Parameters	Estimates	Standardized	*p*
Autonomy → Perception of Warmth	-.01(.04)	-.02	.772
Relatedness → Perception of Warmth	-.03(.04)	-.05	.458
Competency → Perception of Warmth	.02(.11)	.01	.822
Symbolic Threat → Perception of Warmth	-.27(.06)	-.33	<.001
Realistic Threat → Perception of Warmth	.03(.05)	.04	.564
Autonomy → Perception of Competence	-.03(.03)	-.07	.254
Relatedness→ Perception of Competence	-.04(.03)	-.09	.210
Competency→ Perception of Competence	.45(.08)	.33	<.001
Symbolic Threat→ Perception of Competence	-.02(.05)	-.04	.553
Realistic Threat→ Perception of Competence	.04(.04)	.08	.299
Autonomy → Symbolic Threat	.02(.04)	.03	.583
Relatedness→ Symbolic Threat	0.39(.03)	.53	<.001
Competency→ Symbolic Threat	.53(.09)	.25	<.001
Autonomy → Realistic Threat	.10(.04)	.11	.019
Relatedness → Realistic Threat	0.34(.04)	.40	<.001
Competency → Realistic Threat	.89(.10)	.36	<.001

N = 446
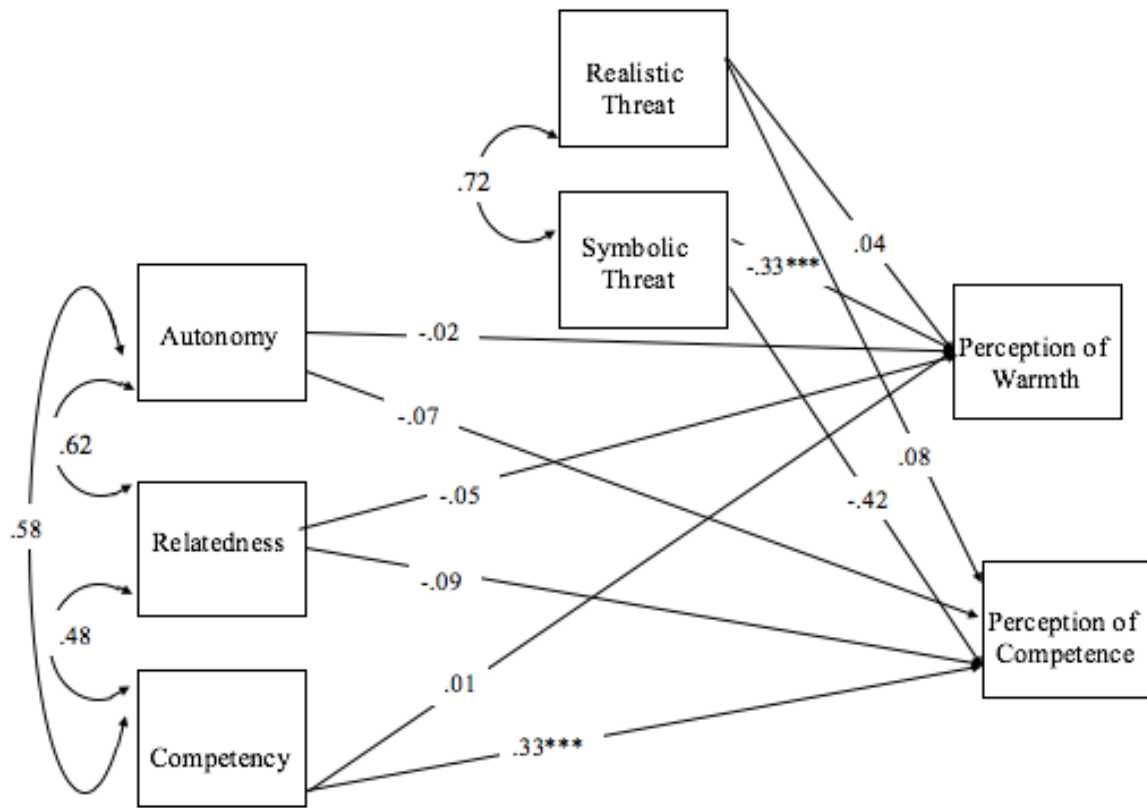
*Note.* *=p<.05, **= p < .01, ***=p<.001.

Figure 6. *Path Analysis Results for Model 3 for the NUS students sample (standardised solutions)*

Table 5.

Unstandardized, Standardized, and Significance Levels for Model 3 for the NUS students sample, as shown in Figure 6 (Standard Errors in Parentheses)

Parameters	Estimates	Standardized	p
Autonomy → Perception of Warmth	-.01(.04)	-.02	.770
Relatedness → Perception of Warmth	-.03(.04)	-.05	.383
Competency → Perception of Warmth	.02(.11)	.01	.806
Symbolic Threat → Perception of Warmth	-.27(.06)	-.33	<.001
Realistic Threat → Perception of Warmth	.03(.05)	.04	.513
Autonomy → Perception of Competence	-.03(.03)	-.07	.251
Relatedness→ Perception of Competence	-.04(.03)	-.09	.141
Competency→ Perception of Competence	.45(.08)	.33	<.001
Symbolic Threat→ Perception of Competence	-.03(.04)	-.04	.518
Realistic Threat→ Perception of Competence	.03(.04)	.08	.240

N = 446

Discussion

Model 2 fitted the data significantly better and explained a larger percentage of variance in the two outcome variables, compared to Model 1. This supports our first hypothesis, which proposes that immigrants' instrumentality to locals' need for basic psychological needs satisfaction will predict locals' attitudes towards immigrants, above and beyond locals' perception of intergroup threats. Specifically, symbolic threat significantly predicted perception of warmth, while immigrants' instrumentality to locals' competency needs satisfaction significantly predicted perception of competence, above and beyond the other variables.

Model 2 fitted the data significantly better than Model 3 as well, supporting the proposition that immigrants' instrumentality to locals' basic psychological needs satisfaction are antecedents to intergroup threats. The three BPNT variables could also explain about half the variance in the two threats, further supporting this assertion.

Path analyses in Model 2 revealed several significant regression pathways between immigrants' instrumentality to locals' basic psychological needs satisfaction and intergroup threats. Immigrants' instrumentality to locals' pursuit of all three basic needs significantly predicted locals' perception of realistic threat. The more locals perceived immigrants to be thwarting their satisfaction of the three basic needs, the more they perceived immigrants to be realistically threatening. It also showed that immigrants' instrumentality to locals' attempts to satisfy relatedness and competency needs significantly predicted locals' perception of symbolic threat. The more locals felt that immigrants were hindering their relatedness and competency needs satisfaction, the more symbolic threat they perceive immigrants to pose to them.

Upon carrying out mediation analyses on Model 2, two indirect effects were found to be significant. Immigrants' instrumentality in helping locals' goals to satisfy their relatedness and competency needs predicted how warm they viewed immigrants to be through perceived symbolic threat. The more immigrants hindered locals' goal pursuit of fulfilling their needs for relatedness and competency, the more symbolic threat locals perceived immigrants to pose and in turn, the less warmth they perceived immigrants to possess.

The findings of Study 1 gives support for hypothesis 1 and hypothesis 2. Overall, it has shown that immigrants' instrumentality can predict attitudes towards immigrants, both directly and indirectly, via intergroup threats.

Study 2

Study 2 examines if the results from Study 1 can be generalized to the Singapore population. Study 2 is almost a direct replication of Study 1 with the only difference being the type of participants recruited for the study. The participants in Study 2 are from the Singapore's general population and were recruited with the intention to reflect the demographics in Singapore more accurately.

Methods

Subjects. The subjects in study 2 are Singaporeans from the general population of Singapore, taking part in this study as paid participants. The final sample for this study consists of 242 Singaporeans, consisting of 162 females (66.9%) and 80 males (33.1%). The mean age of participants is 36.89 (SD = 10.36).

All participants are Singaporeans with 185 of them being Chinese (76.4%), 26 of them being Malay (10.7%), 23 of them being Indian (9.5%), 8 being Others (3.3%). Care was taken to recruit participants in proportion to Singapore's ethnicity composition, which is 74.3% Chinese, 13.4% Malay, 9.1% Indian, and 3.2% Others, as of 2016 (Wong, 2016). The study also made sure to recruit participants from different age groups. Since according to the Ministry of Culture, Community and Youth (2014), those below the age of 35 are considered youth, out of the 242 participants in this study, 48.1% of them are aged between 21 to 35 and 51.9% of them are aged between 36 to 66. This is to make sure the results of this sample is more representative of the Singapore population.

Procedure. Participants were recruited through SgResearchGroup, a company specialised in recruiting participants for research. Participants selected for the study were sent an e-mail containing the link to the questionnaire. Upon completion, participants were reimbursed S$10.

Questionnaire. The questionnaire used in this study is exactly identical to the one used in Study 1.

Data Analysis. All data analyses done in Study 1 was done in this study as well. An additional Levene's test for equality of variances was done to compare the variance for each measure between the NUS student population in Study 1 and the general population in this Study.

Results

Descriptive statistics. Table 6 below is a summary of the sample means, covariance and variance of all measures for Study 2.

Table 6.

Means, Covariance and variance of all measures.

Measures	Means	1	2	3	4	5	6	7
1. Perception of Competence	3.37	0.40						
2. Perception of Warmth	2.44	0.12	0.55					
3. Realistic Threat	4.64	0.03	-0.23	1.11				
4. Symbolic Threat	4.49	-0.01	-0.27	0.76	0.84			
5. Autonomy	4.14	-0.05	-0.29	0.80	0.80	1.43		
6. Relatedness	4.38	-0.08	-0.31	0.90	0.90	0.95	1.46	
7. Competence	1.24	0.02	-0.02	0.24	0.24	0.27	0.28	0.17

N = 242

Reliability. Table 7 below summarises the reliability coefficient for each measure. Again, using Nunnally's (1978) rule of thumb, of $\alpha = .70$, all of the measures in the questionnaire demonstrated a good level of internal consistency among its items.

Table 7.

Reliability Analysis of scale

Measures	Number of items	Cronbach's Alpha
Autonomy	5	.81
Relatedness	6	.84
Competency	3	.73
Symbolic Threat	15	.88
Realistic Threat	15	.91
Perception of Warmth	4	.88
Perception of Competence	5	.76

N = 242

Model Fit. Model 1 was fitted and results indicated that it did not fit well with the data, $\chi^2(16)= 541.42$, $p <.001$, CFI = .338, SRMR = .363. R^2 for the perception of warmth was .158 and .010 for the perception of competence.

Model 2 was fitted and results suggest that it is a well-fitted model, $\chi^2(1)= 11.91$, $p=$. 0.001, CFI = .98, SRMR =.036. R^2 was .210 for the perception of warmth, .061 for the perception of competence, .587 for symbolic threat, and .566 for realistic threat.

Model 3 was also fitted and the results showed that it was not a good fit, $\chi^2(7)=$ 272.380, $p<.001$, CFI = .523, SRMR =.380. R^2 was .151 for the perception of warmth, .130 for the perception of competence.

Model Comparison. The two model comparisons, using chi-square difference test, were done and results showed that Model 2 fitted the data significantly better than Model 1, $\Delta\chi^2 (15) = 529.51$, $p <.001$. Compared to Model 1, Model 2 had a .052 higher R^2 for perception of warmth and a .051 higher R^2 for perception of competence.

Model 2 was also found to be significantly better than Model 3, $\Delta\chi^2 (6) = 260.47$, $p <.001$. The three BPNT variables also explained for a large percentage of variance in locals' perception of warmth (58.7%) and perception of competency (56.6%).

Mediation analyses. The same mediation analyses done in Study 1 was done on Model 2 in this study too. Similar to Study 1, only two indirect paths were found to be significant. Relatedness predicted perception of warmth through perception of symbolic threat, with an indirect effect of -0.08 and a 95% confidence interval of -0.15 to -0.001. Dissimilar to Study 1, autonomy had an indirect effect on perception of warmth through symbolic threat with an indirect effect of -1.90and a 95% confidence interval of -0.15 to - 0.004. No other indirect effects were found.

Path Analysis. The regression coefficients for each regression pathway for all four models are presented in both figures and tables below. Regression coefficients for Model 1 is

presented in Figure 8 and Table 7. Regression coefficients for Model 2 is presented in Figure 8 and Table 9, while regression coefficients for Model 3 is presented in Figure 9 and Table 10.

For Model 1, only symbolic threat significantly predicted perception of warmth. Model 2 revealed that symbolic threat, immigrants' instrumentality to locals' needs to experience relatedness and competence significantly predicted perception of immigrants' warmth, above and beyond the other variables, while immigrants' instrumentality to locals' competence and relatedness satisfaction significantly predicted perception of immigrants' competence, above and beyond the other variables. In addition, similar to Study 1, all three instrumentality variables significantly predicted realistic threat. However, different from Study 1, only autonomy and relatedness predicted symbolic threat, above and beyond competency.

Model 3 showed that symbolic threat, immigrants' instrumentality to locals' all three needs significantly predicted perception of immigrants' warmth, above and beyond the other variables. Realistic threat, immigrants' instrumentality to locals' competence and relatedness satisfaction significantly predicted perception of immigrants' competence, above and beyond the other variables.
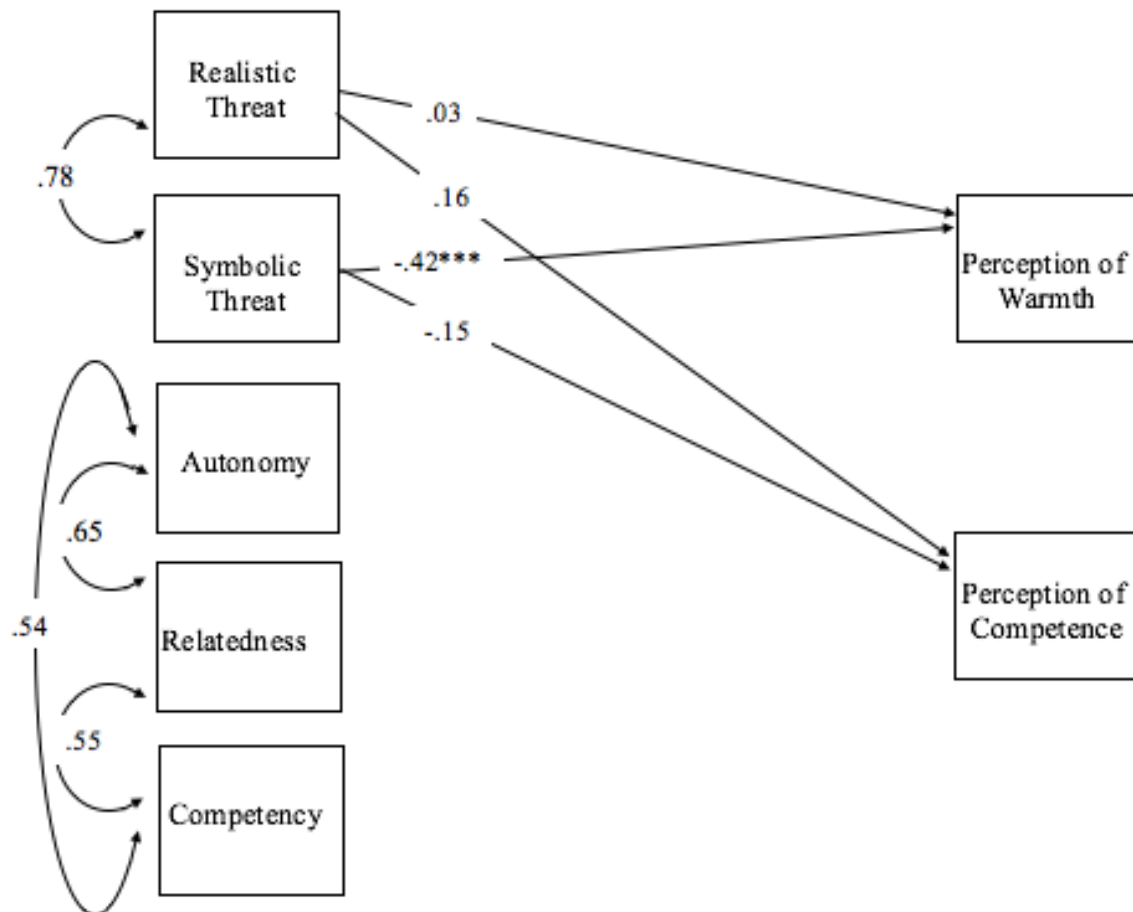
Note. *=p<.05, **= p < .01, ***=p<.001. For the purpose of presentation, covariances and variances are not presented in this model illustration.

Figure 7. *Path Analysis Results for Model 1 for the general population sample (standardised solutions)*

Table 8.

Unstandardized, Standardized, and Significance Levels for Model 1, for the general population sample, as shown in Figure 7 (Standard Errors in Parentheses).

Parameters	Estimates	Standardized	p
Symbolic Threat → Perception of Warmth	-.34(.08)	-.42	<.001
Realistic Threat → Perception of Warmth	.02(.07)	.03	.723
Symbolic Threat→ Perception of Competence	-.10(.07)	-.15	.158
Realistic Threat→ Perception of Competence	.09(.06)	.16	.131
N = 242			
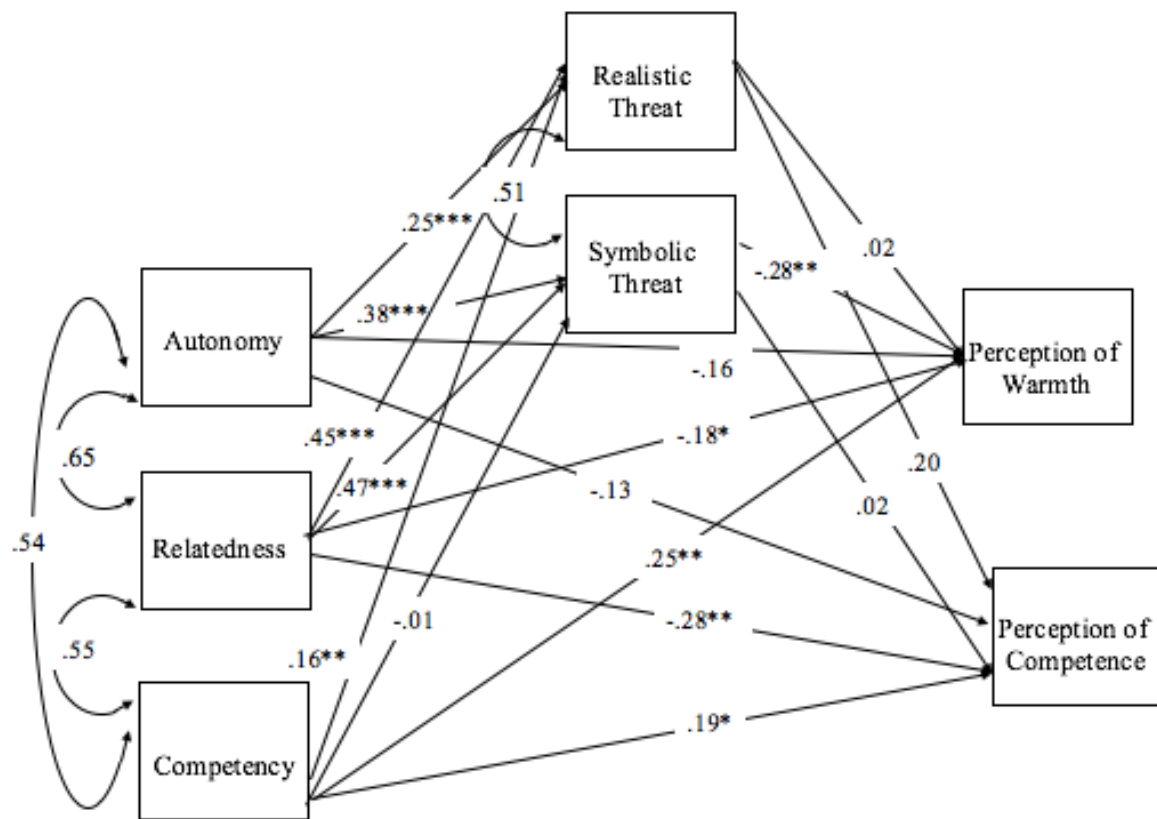
Note. *=p<.05, **= p < .01, ***=p<.001.

Figure 8. *Path Analysis Results for Model 2 for the general population sample (standardised solutions)*

Table 9.

Unstandardized, Standardized, and Significance Levels for Model 2 for the general population sample, as shown in Figure 8 (Standard Errors in Parentheses)

| Parameters	Estimates	Standardized	*p*
Autonomy → Perception of Warmth	-.10(.05)	-.16	.056
Relatedness → Perception of Warmth	-.11(.06)	-.18	.045
Competency → Perception of Warmth	.45(.13)	.25	.001
Symbolic Threat → Perception of Warmth	-.23(.08)	-.28	.006
Realistic Threat → Perception of Warmth	.02(.07)	.02	.825
Autonomy → Perception of Competence	-.07(.05)	-.13	.156
Relatedness→ Perception of Competence	-.14(.05)	-.28	.006
Competency→ Perception of Competence	.28(.12)	.19	.019
Symbolic Threat→ Perception of Competence	.01(.08)	.02	.863
Realistic Threat→ Perception of Competence	.12(.07)	.20	.067
Autonomy → Symbolic Threat	.29(.04)	.38	<.001
Relatedness→ Symbolic Threat	.35(.04)	.47	<.001
Competency→ Symbolic Threat	-.02(.11)	-.01	.838
Autonomy → Realistic Threat	.23(.05)	.25	<.001
Relatedness → Realistic Threat	.39(.05)	.45	<.001
Competency → Realistic Threat	.41(.13)	.16	.002

N = 242
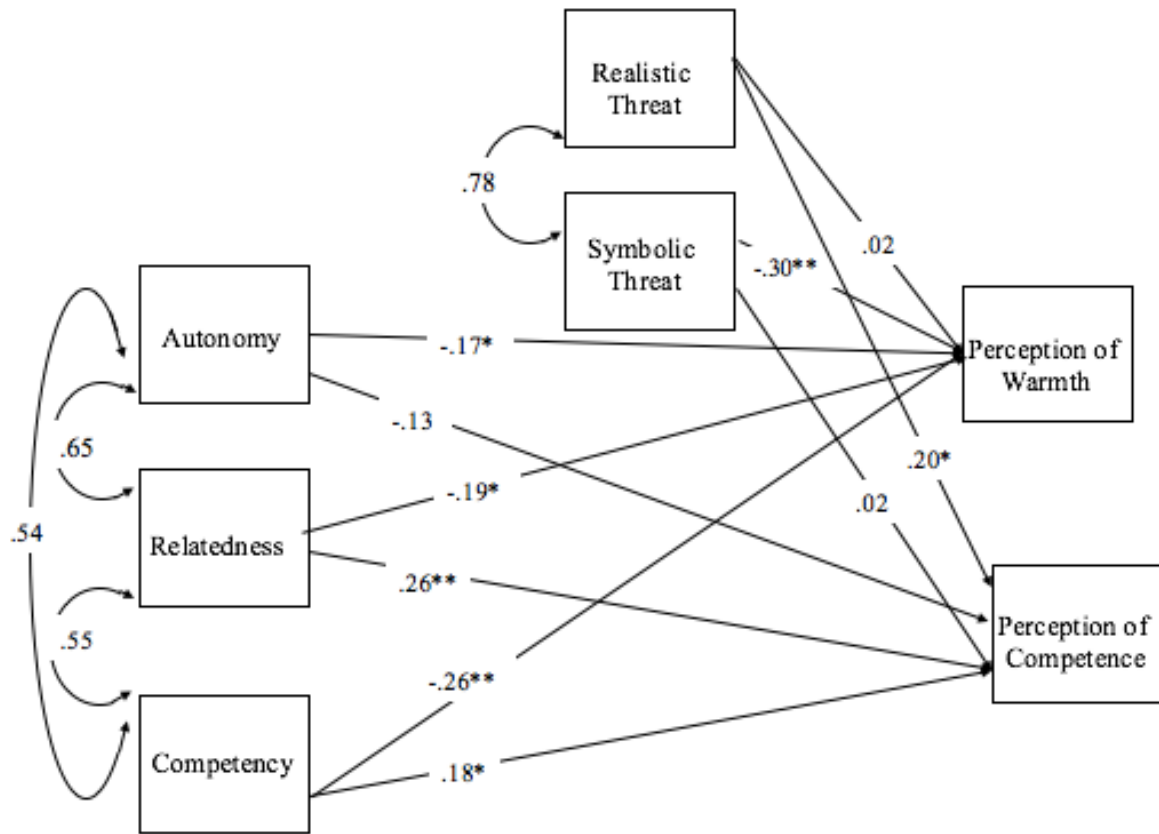
Note. *=p<.05, **= p < .01, ***=p<.001.

Figure 9. *Path Analysis Results for Model 3 for the general population sample (standardised solutions)*

Table 10.

Unstandardized, Standardized, and Significance Levels for Model 3 for the general population sample, as shown in Figure 9 (Standard Errors in Parentheses)

Parameters	Estimates	Standardized	*p*
Autonomy → Perception of Warmth	-.10(.05)	-.17	.037
Relatedness → Perception of Warmth	-.11(.05)	-.19	.020
Competency → Perception of Warmth	.45(.13)	.26	.001
Symbolic Threat → Perception of Warmth	-.23(.07)	-.30	.002
Realistic Threat → Perception of Warmth	.02(.07)	.02	.808
Autonomy → Perception of Competence	-.07(.05)	-.13	.121
Relatedness→ Perception of Competence	-.14(.05)	-.26	.002
Competency→ Perception of Competence	.28(.12)	.18	.016
Symbolic Threat→ Perception of Competence	.01(.07)	.02	.845
Realistic Threat→ Perception of Competence	.12(.06)	.20	.044

N = 242

Equality of Variances. Levene's test for equality of variances was done to see if the variances were equal for all measures across the two studies. As seen from Table 11 below, the variances of the two population were not significantly different, at the .05 significance level, for only three measures (Perception of Warmth, Belongings, Competence). Most variables measured in this research have significantly higher variances for the general population, compared to the student population.

Table 11.

Levene's test for equality of variances

Measures	Variance for NUS sample (N=446)	Variance for general population sample (N= 242)	Levene Statistic	df1	df2	*p*
Perception of Competence	0.27	0.40	5.35	1	686	.018
Perception of Warmth	0.43	0.55	6.96	1	686	.094
Realistic Threat	0.85	1.12	5.63	1	686	.021
Symbolic Threat	0.65	0.84	2.82	1	686	.009
Autonomy	1.00	1.43	9.61	1	686	.002
Relatedness	1.19	1.46	3.17	1	686	.076
Competence	0.14	0.18	1.30	1	686	.255

Discussion

The extent to which the results of Study 2 support the two hypotheses is similar to Study 1. In Study 2, Model 2 fitted the data significantly better than Model 1 and this supports our first hypothesis. Moreover, immigrants' instrumentality variables improved the explained variance substantially for both perceptions of warmth and competence. Immigrants' instrumentality to locals' relatedness and competence needs satisfaction together with their perception of symbolic threat significantly predicted perception of warmth, while only immigrants' instrumentality to locals' relatedness and competence needs satisfaction significantly predict perception of competence, above and beyond the other predictors. Evidently, immigrants' instrumentality to locals' goal pursuit of satisfying basic psychological needs predicts locals' attitudes towards immigrants, above and beyond locals' perception of intergroup threats. This confirms that immigrants' instrumentality to locals' pursuit of basic psychological needs satisfaction should be considered when understanding locals' evaluation of immigrants since it shows that it has predictive power unique from perception of intergroup threats posed by immigrants.

Study 2 also replicated the findings that immigrant's instrumentality to locals' three basic psychological needs are antecedents to locals' perception of intergroup threats. In this study, Model 2 fitted the data significantly better than Model 3, indicating that the three basic needs significantly predicted intergroup threats.

Specific pathway analyses in Model 2 revealed that immigrants' instrumentality to locals' pursuit of all three basic needs significantly predicted locals' perception of realistic threat, while immigrants' instrumentality to locals' attempts to satisfy autonomy and relatedness needs significantly predicted locals' perception of symbolic threats. The more locals perceived immigrants to be thwarting the satisfaction of their three basic needs, the more they perceived immigrants to be realistically threatening. Likewise, the more locals feel that immigrants are hindering their relatedness and competency needs satisfaction, the more realistic threat they perceive immigrants to pose to them.

Similar to Study 1, further mediation analyses done on Model 2 also revealed two indirect effects. Immigrants' instrumentality in helping locals' goals to satisfy their autonomy and relatedness needs predicted how warm locals will view immigrants to be, through locals' perceived symbolic threat. The more immigrants hinder locals' goal pursuit of fulfilling their needs for autonomy and relatedness, the less warmth they perceive immigrants to be, and this effect is through locals' perception of symbolic threat. This echoes the findings of Study 1, which asserts that immigrants' instrumentality to locals' basic psychological needs satisfaction also predicts attitudes towards immigrants, via intergroup threats.

The results in study 2 largely mirror the results of Study 1, in regard to providing evidence for the two hypotheses. The results did reveal differing differences in the specific relationships between variables, compared to Study 1, which would be discussed in the following section.

General discussion

Both studies agree that immigrants' instrumentality to locals' basic needs satisfaction have direct and indirect effects on attitudes towards immigrants. While certain direct and indirect effects are specific to each population, there are still some common effects between the populations.

Direct Effects of Immigrants' Instrumentality to Locals' Needs

The first hypothesis was concerned about whether the inclusion of immigrants' instrumentality to locals' attempts to satisfy autonomy and relatedness needs will value-add to the existing ITT when predicting attitudes towards immigrants. The results of both studies in this research supports the inclusion since prediction of attitudes towards immigrants significantly improved after its inclusion.

In both studies, the model (Model 2) that included immigrants' instrumentality to locals' three basic psychological needs satisfaction as predictors for attitudes towards immigrants fared significantly better than the model (Model 1) that only used intergroup threats as predictors. This supports the proposition that a combination of the two theories is better when attempting to predict or understand what drives locals' attitudes towards immigrants since immigrants' instrumentality to locals' three basic psychological needs satisfaction have direct effects on attitudes towards immigrants.

Furthermore, Immigrants' instrumentality to locals' basic psychological needs accounts for additional variance in attitudes towards immigrants, above and beyond perceived threats. Explained variance for perception of competence in both studies increased substantially (about 5%) after the addition of the basic psychological needs satisfaction variables. The change in explained variance for the perception of warmth was mixed across studies with it increasing minimally (0.1%) for Study 1, but substantially (5.2%) for Study 2. The substantial increase in explained variance, especially for the perception of competence

dimension, supports the notion to include immigrants' instrumentality to locals' basic needs satisfaction when predicting attitudes towards immigrants.

The inclusion of immigrants' instrumentality makes up for the limited predictive power of intergroup threat. Two significant paths in both studies' Model 2s show evidence for this. In both studies, symbolic threat has been found to consistently predicted locals' perception of warmth, while immigrants' instrumentality to locals' competency needs satisfaction has been found to consistently predicted perception of competence. Specifically, the more immigrants hindered locals' needs to feel competent, the more competent locals view them. Since past research on intergroup threats and attitudes are built upon an understanding of attitudes as a univalent concept (e.g., Stephan et al, 1998; Velasco González et al., 2008; Stephan et al., 2000), components of intergroup threats may only be capable in consistently predicting the warmth dimension, but not the competence dimension (Kervyn, Fiske & Yzerbyt, 2015). The inclusion of immigrants' instrumentality makes up for this. As such, both theories complement each other to predict both dimensions of attitudes towards immigrants, consistently making Model 2 the better model.

All in all, these results showing the importance of considering immigrants' instrumentality to locals' needs satisfaction agree with prior studies showing that one tends to change the appraisal of others based on how useful that person is to one's goal attainment (Fitzsimons & Fishbach, 2010; Fitzsimons & Shah, 2008). In the current context of this research, the more immigrants are seen to hinder locals' basic psychological needs satisfaction, the more negative locals' attitudes towards immigrants and this supports our first hypothesis.

Indirect Effects of Immigrants' Instrumentality to Locals' Needs

The analysis established that immigrants' instrumentality to locals' basic psychological needs satisfaction has the potential to directly predict attitudes towards

immigrants, above and beyond intergroup threats, but how about indirectly through intergroup threats?

Immigrants' instrumentality to locals' three basic psychological needs satisfaction are antecedents to intergroup threats, as shown by Model 2 significantly fitting better than Model 3 in both studies. Instrumentality of immigrants to locals' pursuit of the three basic needs accounted for a significant amount of variance in perceived intergroup threats (49% - 59%). The more immigrants are perceived to be hindering locals' goals to satisfy their needs, the greater the perceived realistic and symbolic threat. To add, five out of six pathways between the three basic psychological needs variables and the two intergroup threats were found to be significant in both studies. In both studies, pathways between immigrants' instrumentality to locals' attempts to satisfy relatedness needs and their perception of symbolic threats and the pathways between immigrants' instrumentality to locals' all three needs satisfaction and realistic threat were found to be significant. The last significant pathway in each study were different. Nevertheless, when taken as a whole, the current findings suggest that immigrants' instrumentality to locals' needs satisfaction serves as antecedents to perceived intergroup threats. Thus, not only does locals' pursuit of basic psychological needs satisfaction predict their evaluation of immigrants, it also influences how much intergroup threat locals perceive immigrants to pose.

Two indirect effects of immigrants' instrumentality to locals' needs satisfaction, via intergroup threats, on attitudes towards immigrants were found in each study too. The indirect effect of immigrants' instrumentality to locals' relatedness satisfaction on perceptions of warmth, through symbolic threats, was a common indirect effect found in both studies. The more participants feel that immigrants threaten their pursuits to satisfy relatedness needs, the more symbolic threat they perceive immigrants to pose, and in turn, the less warmth they perceive immigrants to possess.

All in all, both studies support the second hypothesis claiming that not only does immigrants' instrumentality to locals' basic psychological needs satisfaction influence their attitudes towards immigrants directly, it also influences their attitudes towards immigrants indirectly, via intergroup threats.

Effects Specific to Each Population

Although the results of both studies were largely similar, there were also certain direct and indirect effects that were specific to each population. While Study 1 found two significant direct effects, Study 2 found another three significant pathways in addition to those found in Study 1. In Study 2, immigrants' instrumentality to locals' relatedness need satisfaction also significantly predicted both their perception of competence and warmth, above and beyond other predictors. Immigrants' instrumentality to locals' competency need satisfaction significantly predicted perception of warmth as well, above and beyond other predictors.

Apart from the common indirect effect found in both studies discussed in the previous section, each study found another indirect effect that was unique to its population. In Study 1, immigrants' instrumentality to locals' competency need satisfaction predicted perception of warmth through symbolic threats, while Study 2 found that immigrants' instrumentality to locals' autonomy need satisfaction predicted perception of warmth through symbolic threats.

The first reason why these differences in effects exist between the two populations could be because of the difference in the demographics of the population for each study. Participants in the first study were mostly university students, while participants in the second study are from the general population. Naturally, the average participant in the first study will probably be younger and more educated than the average participant from the second study. It could be due to this reason that the instrumentality immigrants have a different effect on the two populations' pursuit for basic needs satisfaction.

The second reason possibly lies in the different degree of homogeneity between the two populations. Participants in the first study are highly similar to one another, in terms of race, education level, and age. In contrast, participants in the second study are far less homogenous and are recruited to specifically represent the diverse Singapore population. As a result, there were more variations in the responses elicited from the second population. A larger variance means that the responses in that population is more spread out and this translate to a higher chance of finding possible trends and relationship between variables. As such, since there is such a wide difference in variance for most measures between the two population, the observed relationships between variables will differ as well.

These differences between the populations may be the reason in the specific indirect effect and direct effects differ in both studies. An additional study might be beneficial to help conclude with more certainty which relationships between the variables are more generalisable to the general population in Singapore. Having said that, these differences are considerably minor. There is a larger number of direct and indirect effects that were common to both studies. Importantly, such convergent findings support both hypothesis.

Limitations

Although the findings in this study is informative, there are some limitations to be addressed. First, an ideal sample would be one that is larger and more diverse. This is important as the current thesis examined complex models and estimated a large number of parameters. Thus, a larger sample size would have been ideal to make the findings of this research more robust. To add, even though study 2 attempted to recruit a representative Singaporean sample, the number of participants that were above the age of 55 made up less than 7% of the sample. A larger representation from the older citizens in Singapore is needed to make the results reflect the true sentiments in Singapore more accurately. In UK, about 66% youths reported they will vote "remain", while only 40% of those over the age of 55

reported they will do so (Khan, 2016). This is an example of the disparity youths and older citizens might have over the issue of immigration. If the trend seen in UK is similar in Singapore, a less positive evaluation of immigrants in Singapore is to be expected if we include a larger number of older participants. In short, the generalisability of the current thesis is limited since it is more reflective of younger Singaporeans' attitudes towards immigrants.

Second, since the current research is correlation in nature, no causal conclusions can be drawn. An additional experimental study, where the degree to which immigrants are instrumental to each of locals' needs satisfaction are manipulated, would help to increase the confidence and usefulness of these findings. Therefore, future studies can expand on the current research by manipulating the three basic needs satisfaction predictors, as well as the two mediators, to test the strength of the findings found in this research.

Implications and Future Directions

Despite having some limitations, being first of its kind, this research has presented much fresh perspectives to the existing understanding of attitudes towards immigrants. It helps us to reinterpret past conflicts between locals and immigrants in Singapore. For example, a few years ago, a China scholar in Singapore, Sun Xu, sparked outrage among Singaporeans after he compared Singaporeans to dogs on his blog (Chen, 2012). This issue raised questions of locals' belongingness in Singapore, as Singaporeans questioned why scholarships are given to immigrants, especially those that disrespect Singapore, rather than Singaporeans. Inevitably, Singaporeans started viewing immigrants, especially Sun Xu, as less warm. This perception of low warmth coupled with the constant emphasis on Sun Xu's scholarship status worked together to create more hostility towards immigrants. Research show that in the process of evaluating others, warmth assessment is primary, whereas competence assessment is secondary (Cuddy, Glick, & Beninger, 2011). This is because

warmth perception is thought to reflect how useful one is to others while perceived competence is thought to reflect how profitable one is for oneself (Peeters, 2001). This effect might be especially more pronounced when Singaporeans' acceptance of immigrants is heavily contingent on how much benefits immigrants can reap for them. Even though Sun Xu was portrayed as a highly competent immigrant, his undermining of Singaporeans' sense of relatedness made him seem less warm and so, his high competency worked against him instead.

The local media as well as government should take care to not make statements or present information in ways that highlight how immigrants can potentially thwart Singaporeans' three basic psychological needs satisfaction, particularly needs for relatedness, in times of stress. Relatedness has been found to be able to consistently influence perception of warmth, via symbolic threats. If Singaporeans feel their sense of relatedness is being threatened by immigrants, they will perceive immigrants to be low in warmth. According to the literature on SCM, Singaporeans will then be hostile towards both foreign workers (low-competence) because they deem them to be wasting resources and foreign talents (high-competence) because locals will use them as scapegoats during times of stress.

The theoretical implications of this research are also far-reaching as it is the first study to demonstrate how immigrants' instrumentality to locals' goals to satisfy basic psychological needs can affect how locals view immigrants. Apart from addressing the limitations identified in this research, future research can build on this study to explore other goals that locals have that may influence locals' attitudes towards immigrants. Particularly in Singapore, the goal of "not losing out" is especially unique and salient among Singaporeans. Perhaps, future research can investigate if immigrants' instrumentality to this goal can improve the prediction of Singaporeans' attitudes towards immigrants.

Conclusion

All in all, this research supports the notion that our attitude towards others is dependent on how useful they are to our goals (Fitzsimons & Fishbach, 2010; Fitzsimons & Shah, 2008) by demonstrating that immigrants' instrumentality to locals' basic psychological needs satisfaction affects their attitudes towards immigrants either directly or indirectly, through intergroup threats.

Wanyne W. Dyer once said, "Change the way you look at things and the things you look at change.". Having immigrants in Singapore can either foster or hinder your goals, depending on how one sees it. As long as Singaporeans are willing to change their perspectives, relations between immigrants and Singaporeans can improve.

Reference

2 in 3 Singaporeans polled strongly support foreign worker reduction policies: survey (2012,

March 20) Retrieved from http://sbr.com.sg/economy/in-focus/2-in-3-singaporeans-

polled-strongly-support-foreign-worker-reduction-policies-

surve#sthash.8s3EdCqH.dpuf

Abele, A. E., Cuddy, A. J., Judd, C. M., & Yzerbyt, V. Y. (2008). Fundamental dimensions

of social judgment. *European Journal of Social Psychology*, *38*(7), 1063-1065.

Asch, S. E. (1946). Forming impressions of personality. *The Journal of Abnormal and Social

Psychology*, *41*(3), 258.

Au-Yong, R. (2015, January 19). Govt puts interests of Singaporeans first. *The Straits Times.*

Retrieved November 2, 2015, from factiva.com

Baker, J. A. (2015, August 25). *GE2015: Immigration will be hot issue in campaign, say

political observers.* Retrieved from http://www.straitstimes.com/politics/ge2015-

immigration-will-be-hot-issue-in-campaign-say-political-observers

Bartholomew, D. J., Knott, M., & Moustaki, I. (2011). *Latent variable models and factor

analysis: A unified approach* (Vol. 904). John Wiley & Sons.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: desire for interpersonal

attachments as a fundamental human motivation. *Psychological bulletin*, *117*(3), 497.

Beauchamp, Z. (2016, June 24). *Brexit is terrifying — and no, not because of the economics*.

Retrieved from https://apps.voxmedia.com/at/vox-european-and-uk-gdp-since-world-

war-ii

Beauchamp, Z. (2016, June 24). *Brexit isn't about economics. It's about xenophobia.*

Retrieved from http://www.vox.com/2016/6/23/12005814/brexit-eu-referendum-

immigrants

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological*

    bulletin, *107*(2), 238.

Biernat, M., Vescio, T. K., Theno, S. A., & Crandall, C. S. (1996). Values and prejudice:

    Toward understanding the impact of American values on outgroup attitudes.

Bobo, L. (1983). Whites' opposition to busing: Symbolic racism or realistic group

    conflict?. *Journal of Personality and Social Psychology*, *45*(6), 1196.

Bobo, L. (1988). Group conflict, prejudice, and the paradox of contemporary racial attitudes.

    In *Eliminating racism* (pp. 85-114). Springer US.

Byrne, B. M. (2013). *Structural equation modeling with LISREL, PRELIS, and SIMPLIS:*

    Basic concepts, applications, and programming. Psychology Press.

Chan, D. (2012). *The Heart of the Immigration Debate*. Retrieved from

    http://ink.library.smu.edu.sg/cgi/viewcontent.cgi?article=2604&context=soss_researc

    h

Chan, H. C. (1971). Singapore: the politics of survival, 1965-1967. Oxford University Press.

Cheam, J., & Heng, J. (2013, March 30). Hire locals first. *The Straits Times*. Retrieved

    November 2, 2015, from http://www.stjobs.sg/ career-resources/training-and-

    development/hire-localsfirst/a/112278

Chia, S. Y. (2011). Foreign labor in Singapore: Rationale, policies, impacts, and issues.

    Philippine Journal of Development, 38(1/2), 105-133. Retrieved from

    http://dirp3.pids.gov.ph/webportal/CDN/PUBLICATIONS/pidspjd11-singapore.pdf

Conroy, D. E., & Coatsworth, J. D. (2007). Assessing autonomy-supportive coaching

    strategies in youth sport. *Psychology of sport and exercise*, *8*(5), 671-684.

Cuddy, A. J. C., & Frantz, C. M. (2007). Legitimating status inequalities: The effect of race

    on motherhood discrimination Manuscript submitted for publication. *Cuddy, AJC,*

    Fiske, ST & Glick, P.(2008). Warmth and competence as universal dimensions of

social perception: the stereotype content model and the BIAS Map. Advances in Experimental Social Psvchology, *40*, 61-147.

Cuddy, A. J., Fiske, S. T., & Glick, P. (2004). When professionals become mothers, warmth doesn't cut the ice. *Journal of Social Issues*, *60*(4), 701-718.

Cuddy, A. J., Fiske, S. T., & Glick, P. (2007). The BIAS map: behaviors from intergroup affect and stereotypes. *Journal of personality and social psychology*, *92*(4), 631.

Cuddy, A. J., Fiske, S. T., & Glick, P. (2008). Warmth and competence as universal dimensions of social perception: The stereotype content model and the BIAS map. *Advances in experimental social psychology*, *40,* 61-149.

Cuddy, A. J., Glick, P., & Beninger, A. (2011). The dynamics of warmth and competence judgments, and their outcomes in organizations. *Research in Organizational Behavior*, *31*, 73-98.

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*, 227-268.

Deci, E. L., & Ryan, R. M. (2002). *Handbook of self-determination research*. University Rochester Press.

Deci, E. L., Ryan, R. M., Gagné, M., Leone, D. R., Usunov, J., & Kornazheva, B. P. (2001). Need satisfaction, motivation, and well-being in the work organizations of a former eastern bloc country: A cross-cultural study of self-determination. *Personality and social psychology bulletin*, *27*(8), 930-942.

Diamantopoulos, A., Siguaw, J. A., & Siguaw, J. A. (2000). *Introducing LISREL: A guide for the uninitiated*. Sage.

Dunbar, E., Saiz, J. L., Stela, K., & Saez, R. (2000). Personality and Social Group Value Determinants of Out-Group Bias A Cross-National Comparison of Gough's Pr/To Scale. *Journal of Cross-Cultural Psychology*, *31*(2), 267-275.

Esses, V. M., Dovidio, J. F., Jackson, L. M., & Armstrong, T. L. (2001). The immigration dilemma: The role of perceived group competition, ethnic prejudice, and national identity. *Journal of Social issues*, *57*(3), 389-412.

Esses, V. M., Haddock, G., & Zanna, M. P. (1993). Values, stereotypes, and emotions as determinants of intergroup attitudes.

Esses, V. M., Jackson, L. M., & Armstrong, T. L. (1998). Intergroup competition and attitudes toward immigrants and immigration: An instrumental model of group conflict. *Journal of Social Issues*, *54*(4), 699-724.

Ferguson, M. J., & Bargh, J. A. (2004). Liking is for doing: the effects of goal pursuit on automatic evaluation. *Journal of personality and social psychology*, *87*(5), 557.

Fiske, S. T., Cuddy, A. J., Glick, P., & Xu, J. (2002). A model of (often mixed) stereotype content: competence and warmth respectively follow from perceived status and competition. *Journal of personality and social psychology*, *82*(6), 878.

Fiske, S. T., Xu, J., Cuddy, A. C., & Glick, P. (1999). (Dis) respecting versus (dis) liking: Status and interdependence predict ambivalent stereotypes of competence and warmth. *Journal of Social Issues*, *55*(3), 473-489.

Fitzsimons, G. M., & Fishbach, A. (2010). Shifting closeness: interpersonal effects of personal goal progress. *Journal of personality and social psychology*, *98*(4), 535.

Fitzsimons, G. M., & Shah, J. Y. (2008). How goal instrumentality shapes relationship evaluations. *Journal of personality and social psychology*, *95*(2), 319.

Freedman, M. B., Leary, T. F., Ossorio, A. G., & Goffey, H. S. (1951). The Interpersonal Dimension of Personality1. *Journal of personality*, *20*(2), 143-161.

Gagne, M. (2003). Autonomy support and need satisfaction in the motivation and well-being of gymnasts. *Journal of Applied Sport Psychology*, *15*(4), 372-390.

Gardner, W. L., Pickett, C. L., Jefferis, V., & Knowles, M. (2005). On the outside looking in: Loneliness and social monitoring. *Personality and Social Psychology Bulletin*, *31*(11), 1549-1560.

Grolnick, W. S., Bridges, L., & Frodi, A. (1984). Maternal control style and the mastery motivation of one-year-olds. *Infant Mental Health Journal*, 5, 72–82.

Hooper, D., Coughlan, J., & Mullen, M. (2008). Structural equation modelling: Guidelines for determining model fit. *Articles*, 2.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary journal*, *6*(1), 1-55.

Hummert, M. L., Garstka, T. A., O'Brien, L. T., Greenwald, A. G., & Mellott, D. S. (2002). Using the implicit association test to measure age differences in implicit social cognitions. *Psychology and aging*, *17*(3), 482.

Imamura, M., Zhang, Y. B., & Harwood, J. (2011). Japanese sojourners' attitudes toward Americans: Exploring the influences of communication accommodation, linguistic competence, and relational solidarity in intergroup contact. *Journal of Asian Pacific Communication*, *21*(1), 115-132.

Judd, C. M., James-Hawkins, L., Yzerbyt, V., & Kashima, Y. (2005). Fundamental dimensions of social judgment: understanding the relations between judgments of competence and warmth. *Journal of personality and social psychology*, *89*(6), 899.

Kashdan, T. B., Gallagher, M. W., Silvia, P. J., Winterstein, B. P., Breen, W. E., Terhar, D., & Steger, M. F. (2009). The curiosity and exploration inventory-II: Development, factor structure, and psychometrics. *Journal of research in personality*, *43*(6), 987-998.

Kasser, V. G., & Ryan, R. M. (1999). The Relation of Psychological Needs for Autonomy

and Relatedness to Vitality, Well-Being, and Mortality in a Nursing Home1. *Journal*

of Applied Social Psychology, *29*(5), 935-954.

Kendall, R. (1998). *Anxiety, fear contribute to prejudice, say NMSU professors.* Retrieved

from http://www.nmsu.edu/~ucomm/Releases/1998/Nov98/stephan2.html

Kervyn, N., Fiske, S. T., & Yzerbyt, V. Y. (2013). Integrating the stereotype content model

(warmth and competence) and the Osgood semantic differential (evaluation, potency,

and activity). *European journal of social psychology*, *43*(7), 673-681.

Kervyn, N., Fiske, S., & Yzerbyt, V. (2015). Forecasting the Primary Dimension of Social

Perception. *Social Psychology*.

Khan, A. (2016, July 7). *Four ways the anti-immigration vote won the referendum for Brexit*.

Retrieved from http://www.newstatesman.com/politics/staggers/2016/07/four-ways-

anti-immigration-vote-won-referendum-brexit

Kinder, D. R., & Sears, D. O. (1981). Prejudice and politics: Symbolic racism versus racial

threats to the good life. *Journal of personality and social psychology*, *40*(3), 414.

Lance, C. E., Butts, M. M., & Michels, L. C. (2006). The sources of four commonly reported

cutoff criteria what did they really say?. *Organizational research methods*, *9*(2), 202-

220.

Lee S. S. (2014, October 18) Foreign worker curbs could hit Singapore's growth and

competitiveness: IMF. *The Straits Times*. Retrieved from

http://www.straitstimes.com/business/economy/foreign-worker-curbs-could-hit-

singapores-growth-and-competitiveness-imf

LePoer, B. L. (Ed.). (1989). *Singapore: A country study*. Federal Research Division.

LeVine, R. A., & Campbell, D. T. (1972). Ethnocentrism: Theories of conflict, ethnic

attitudes, and group behavior.

Lewin, K. (1935). *A dynamic theory of personality*. New York: McGraw-Hill.

Lima, C. (2014, November 4). "Foreigners are taking our jobs" complain Singaporeans. *The*

     Telegraph. Retrieved February 5, 2015, from

     http://www.telegraph.co.uk/expat/expatnews/11205536/Foreignersare-taking-our-

     jobs-complain-Singaporeans.html

Mathews, M. (2014). *Insights from the IPS Survey on Race, Religion and Language.*

     Retrieved from http://lkyspp.nus.edu.sg/ips/wp-

     content/uploads/sites/2/2013/04/Insights-from-the-IPS-Survey-on-Race-Religion-and-

     Language.pdf

Mathews, M., & Soon, D. (2015). Transiting into Singaporean identity: Immigration and

     naturalisation policy. *Migration Letters*, *13*(1), 33-48.

Matthews, M. & Zhang, J. (2016). Sentiments on immigrant integration & the role of

     immigrant associations. *IPS Exchange Series*, *7*.

McConahay, J. B. (1982). Self-interest versus racial attitudes as correlates of anti-busing

     attitudes in Louisville: Is it the buses or the Blacks?. *The Journal of Politics*, *44*(03),

     692-720.

McLaren, L. M. (2003). Anti-immigrant prejudice in Europe: Contact, threat perception, and

     preferences for the exclusion of migrants. *Social Forces*, *81*(3), 909-936.

Ministry of Culture, Community and Youth (2014, March 02). *Overview.* Retrieved from

     https://www.mccy.gov.sg/en/Topics/Youth/Articles/Overview.aspx

Mokhtar, F. (2013, February 16). *Rare Singapore protest against population plan*. Retrieved

     from http://www.huffingtonpost.com/huff-wires/20130216/as-singapore-

     protest/?utm_hp_ref=style

Ng, P. T., & Tan, C. (2010). The Singapore Global Schoolhouse: An analysis of the

development of the tertiary education landscape in Singapore. *International Journal*

of Educational Management, 24(3), 178–188.

Ntoumanis, N., Edmunds, J., & Duda, J. L. (2009). Understanding the coping process from a

self-determination theory perspective. *British Journal of Health Psychology*, *14*(2),

249-260.

Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.

Olds, K. (2007). Global assemblage: Singapore, foreign universities, and the construction of a

"global education hub." *World Development*, 35(6), 959–975.

Peeters, G. (2001). From good and bad to can and must: Subjective necessity of acts

associated with positively and negatively valued stimuli. European Journal of Social

Psychology, 31, 125–136.

Philomin, L. E. (2015, April 11). *Are Singaporeans anti-foreigner? Not in the real world.*

Retrieved December 9, 2016, from

http://www.channelnewsasia.com/news/singapore/are-singaporeans-

anti/1777708.html

Prime Minister's Office. (2013). *Population White Paper*. Retrieved from

http://population.sg/whitepaper/downloads/population-white-paper.pdf.

Quillian, L. (1995). Prejudice as a response to perceived group threat: Population

composition and anti-immigrant and racial prejudice in Europe. *American*

sociological review, 586-611.

Ramesh, S. (2013, February 16). *Singaporeans hold protest against White Paper Population.*

Retrieved from

http://www.channelnewsasia.com/stories/singaporelocalnews/1254631/1/.html

Renfro, C., Duran, A., Stephan, W. G., & Clason, D. L. (2006). The role of threat in attitudes

    toward affirmative action and its beneficiaries1. *Journal of Applied Social*

    Psychology, *36*(1), 41-74.

Rosenberg, S., Nelson, C., & Vivekananthan, P. S. (1968). A multidimensional approach to

    the structure of personality impressions. *Journal of personality and social*

    psychology, *9*(4), 283.

Ryan, R. M., & Deci, E. L. (2000b). Self-determination theory and the facilitation of intrinsic

    motivation, social development, and well-being. *American Psychologist*, 55, 68–78.

Ryan, R. M., Patrick, H., Deci, E. L., & Williams, G. C. (2008). Facilitating health behaviour

    change and its maintenance: Interventions based on self-determination

    theory. *European Health Psychologist*, *10*(1), 2-5.

Sherif, M, & Sherif, C. (1969). *Social Psychology*. New York: Harper.

Smith, C. A., & Ellsworth, P. C. (1985). Patterns of cognitive appraisal in emotion. *Journal*

    of personality and social psychology, *48*(4), 813.

Stephan, W. G., & Renfro, C. L. (2002). The role of threats in intergroup relations. In D.

    Mackie & E. R. Smith (Eds.), *From prejudice to intergroup emotions* (pp. 191-283).

    New York: Psychology Press

Stephan, W. G., & Stephan, C. W. (2000). An integrated threat theory of prejudice. In S.

    Oskamp (Ed.), *Reducing Prejudice and Discrimination* (pp. 23-45). Mahwah, NJ:

    Lawrence Erlbaum Associates.

Stephan, W. G., Boniecki, K. A., Ybarra, O., Bettencourt, A., Ervin, K. S., Jackson, L. A.,

    McNatt, P. S., & Renfro, C. L. (2002). The role of threats in the racial attitudes of

    Blacks and Whites. *Personality and Social Psychology Bulletin*, 28, 1242-1254

Stephan, W. G., Diaz-Loving, R., & Duran, A. (2000). Integrated threat theory and

     intercultural attitudes: Mexico and the United States. Journal of Cross-Cultural

     Psychology, 31, 240–259.

Stephan, W. G., Stephan, C. W., & Gudykunst, W. B. (1999). Anxiety in intergroup relations:

     A comparison of anxiety/uncertainty management theory and integrated threat

     theory. *International Journal of Intercultural Relations*, *23*(4), 613-628.

Stephan, W. G., Ybarra, O., Martnez, C. M., Schwarzwald, J., & Tur-Kaspa, M. (1998).

     Prejudice toward immigrants to Spain and Israel an integrated threat theory

     analysis. *Journal of Cross-Cultural Psychology*, *29*(4), 559-576.

Stephan, W.G., Ybarra, O. and Morrison, K.R. (2009) Intergroup threat theory. In T. Nelson

     (ed.), *Handbook of prejudice* (pp.43-59. Mahwah, NJ: Lawrence Erlbaum Associates.

Sun, S. H. L. (2012). *Population policy and reproduction in Singapore: Making future

     citizens*. Routledge.

 Tabachnick, B. G., & Fidell, L. S. (2007). Using multivariate statistics, 5th. *Needham

     Height, MA: Allyn & Bacon*.

Tai, J. (2014, May 28). Civil society groups 'alarmed' by surge of racism and xenophobia,

     The Straits Times. Retrieved from http://www.straitstimes.com/news/singapore/more-

     singapore-stories/story/civil-society-groups-alarmed-surge-racism-and-

     xenophobia#sthash.aolCAuR9.dpuf

Tan, E. S., & Koh, G. (2010). Citizens and the nation: National orientations of Singaporeans

     survey (NOS4). *Institute of Policy Studies*. Retrieved from

     http://lkyspp.nus.edu.sg/ips/wpcontent/uploads/sites/2/2013/06/CNP__Pol_Part_Surv

     ey_Media_Release_Report_3007_For_Ppts11.pdf

Tausch, N., Tam, T., Hewstone, M., Kenworthy, J., & Cairns, E. (2007). Individual-level and

    grouplevel mediators of contact effects in Northern Ireland: The moderating role of

    social identification. British Journal of Social Psychology, 46, 541–556.

The new political divide. (2016, July 30). *The Economist*. Retrieved from

    http://www.economist.com/news/leaders/21702750-farewell-left-versus-right-contest-

    matters-now-open-against-closed-

    new?spc=scode&spv=xm&ah=9d7f7ab945510a56fa6d37c30b6f1709

Thøgersen-Ntoumani, C., & Ntoumanis, N. (2007). A self-determination theory approach to

    the study of body image concerns, self-presentation and self-perceptions in a sample

    of aerobic instructors. *Journal of Health Psychology*, *12*(2), 301-315.

Toedtling, M. (2013). *Personality and basic psychological needs satisfaction as predictors of*

    self-esteem (Doctoral dissertation, Filozofski fakultet, Sveučilište u Zagrebu).

Toh, C. Y. (2013, September 14). Employers are hiring more locals and fewer foreigners:

    MOM. *The Straits Times.* Retrieved November 2, 2015, from

    http://www.straitstimes.com/singapore/employers-arehiring-more-locals-and-fewer-

    foreigners-mom

Toh, W. L., Yeo, K. H. J., & Choy, J. L. M. (2013). Xenophobia in Singapore: A study on

    foreign talent. *Nanyang Technological University*, *Singapore*. Retrieved from

    http://hdl.handle.net/10356/51286 Available from Nayang Technological University

    Digital Repository - Nayang Technological University database.

Vadaketh, S. T. (2012, August 23). *The End of Identity?*. Retrieved from

    https://www.ipscommons.sg/the-end-of-identity/

Vansteenkiste, M., Lens, W., & Deci, E. L. (2006). Intrinsic versus extrinsic goal contents in

    self-determination theory: Another look at the quality of academic

    motivation. *Educational psychologist*, *41*(1), 19-31.

Vansteenkiste, M., Niemiec, C. P., & Soenens, B. (2010). The development of the five mini-theories of self-determination theory: An historical overview, emerging trends, and future directions. *Advances in motivation and achievement*, *16*, 105-166.

Velasco González, K., Verkuyten, M., Weesie, J., & Poppe, E. (2008). Prejudice towards Muslims in the Netherlands: Testing integrated threat theory. *British Journal of Social Psychology*, *47*(4), 667-685.

Ward, C., & Masgoret, A. M. (2006). An integrative model of attitudes toward immigrants. *International Journal of Intercultural Relations*, *30*(6), 671-682.

White, R. W. (1959). Motivation reconsidered: the concept of competence. *Psychological review*, *66*(5), 297.

Wiggins, J. S. (1982). Circumplex models of interpersonal behavior in clinical psychology. *Handbook of research methods in clinical psychology*, 183-221.

Williams, G. C., Niemiec, C. P., Patrick, H., Ryan, R. M., & Deci, E. L. (2009b). The importance of supporting autonomy and perceived competence in facilitating long-term tobacco abstinence. Annals of Behavioral Medicine, 37, 315–324.

Williams, G. C., Patrick, H., Niemiec, C. P., Williams, L. K., Divine, G., Lafata, J. E., et al. (2009a). Reducing the health risks of diabetes: How self-determination theory may help improve medication adherence and quality of life. The Diabetes Educator, 35, 484–492.

Wong, T. (2014, December 29). Unease in Singapore over Filipino workers. *BBC News Asia*. Retrieved February 5, 2015, from http://www.bbc.com/news/world-asia-28953147

Wong, W. K. (2010). Census of population 2010. Advanced census release. *Department of Statistics, Ministry of Trade & Industry, Republic of Singapore.* Retrieved from: http://www. singstat. gov. sg/pubn/popn/c2010acr. pdf (12 January, 2014).

Wong, W. K. (2016). Population Trends. *Department of Statistics, Ministry of Trade &*

Industry, Republic of Singapore. Retrieved from:

http://www.singstat.gov.sg/docs/default-source/default-document-

library/publications/publications_and_papers/population_and_population_structure/p

opulation2016.pdf.

Xenophobia in Singapore confined to minority: Shanmugam. (2014, May 30). Retrieved from

http://www.todayonline.com/singapore/xenophobia-singapore-confined-minority-

shanmugam

Yeoh, S. A. B., & Lin, W. (2012). Rapid growth in Singapore's immigrant population brings

policy challenges.

Appendix A
Perception of Warmth and Perception of Competence Scales

Please rate the following statements on a scale of 1 – 5, with 1 corresponding to "not at all" and 5 corresponding to "extremely":

	(Competence)					
1	As viewed by society, how competent are immigrants?	1	2	3	4	5
2	As viewed by society, how confident are immigrants?	1	2	3	4	5
3	As viewed by society, how independent are immigrants?	1	2	3	4	5
4	As viewed by society, how competitive are immigrants?	1	2	3	4	5
5	As viewed by society, how intelligent are immigrants?	1	2	3	4	5
	(Warmth)					
6	As viewed by society, how tolerant are immigrants?	1	2	3	4	5
7	As viewed by society, how warm are immigrants?	1	2	3	4	5
8	As viewed by society, how good-natured are immigrants?	1	2	3	4	5
9	As viewed by society, how sincere are immigrants?	1	2	3	4	5

Appendix B
Realistic Threat and Symbolic Threat Scales

Please rate the following statements on a scale of 1 – 7, 1 being Strongly Disagree and 7 being Strongly Agree.

	Realistic Threat	1	2	3	4	5	6	7
1	I am more concerned for my safety when I stay out late at night because of the presence of immigrants.							
2	Immigrants disregard Singapore's laws and rules.							
3	Immigrants disrupt Singapore's peace and order.							
4	MRTs and buses are too crowded for Singaporeans to board because of immigration into Singapore.							
5	Immigrants create a shortage in housing for Singaporeans.							
6	Job searching has become more competitive because of Immigrants							
7	General prices (e.g. cars, housing, food and transport fares) have increased because of immigrants							
8	Immigrants benefit more from Singapore than they contribute.							
9	Immigrants make entering local educational institutions more challenging for locals.							
10	It is difficult to score a good grade in modules, under the bell-curve system, because of Immigrants.							
11	Immigrants make it more difficult for local students to obtain prestigious and sought-after internships.							
12	The government makes policies that put Singaporeans at a disadvantage and benefits Immigrants.							
13	Immigrants have more social benefits than Singaporeans.							
14	The government is more concerned about creating jobs for immigrants than retaining jobs for Singaporeans							
15	The purpose of the government's immigration policy is to benefit Singaporeans							
	Symbolic Threat							
1	Immigration has led to the disruption of our multi-racial society.							
2	Immigrants are disrespectful to Singaporeans' norms and practices.							
3	Singaporeans are not able to practice their cultural norms because of immigrants.							
4	The values and beliefs held by Singaporeans are not similar to those held by Immigrants.							
5	Singaporeans have to change the way they communicate because of Immigrants.							
6	Singapore feels less like home to Singaporeans because of Immigrants.							
7	Immigrants are quite similar to Singaporeans in their manners and behaviours.							

8	Immigrants have similar standards as Singaporeans when it comes to cleanliness.							
9	Singaporeans have to change their customs and norms to suit immigrants.							
10	Immigrants do not try to conform to the rules and norms of Singaporean society.							
11	The values and beliefs of immigrants regarding work are basically quite similar to those of most Singaporean.							
12	Immigrants break up families.							
13	The values and beliefs of immigrants regarding moral and religious issues are not compatible with the beliefs and values of most Singaporeans.							
14	Immigration is undermining Singaporean culture.							
15	Immigrants should learn to conform to the rules and norms of Singapore society as soon as possible after they arrive.							

Appendix C
Basic Psychological Needs Satisfaction Scale

Please rate the following statements on a scale of 1 – 7, with the values corresponding to as follows:

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree

Autonomy	1	2	3	4	5	6	7
1. Because of immigrants in Singapore, I feel like I am less free to decide for myself how to live my life.							
2. Because of the presence of immigrants, I feel more pressured and controlled to be certain ways.							
3. With immigrants in Singapore, I generally feel less free to express my ideas and opinions.							
4. Because of immigrants in Singapore, I feel like I have to be less like myself in my daily situations.							
5. Because of immigrants, there are less opportunities for me to decide for myself how to do things in my daily life.							
Competency							
6. I often feel less competent when I compare myself to immigrants							
7. When I compare myself to immigrants, I feel I am good at what I do.							
8. Immigrants in Singapore have hindered my ability to learn interesting new skills recently.							
Relatedness							
9. I feel a decrease in my sense of belonging in Singapore because of immigrants in Singapore.							
10. I feel more like an outsider in Singapore because of the immigrants in Singapore							
11. Given the opportunity, I would like to migrate out of Singapore because of the immigration situation in Singapore.							
12. Immigrants make Singapore feel less like home to me							
13. I get along with people I meet in Singapore less because of the immigrants in Singapore							
14. I like the people I interact with daily less because there are immigrants in Singapore							