

Running head: EXPERIENCING ALIEN-NATION

Hodson, G., Choma, B. L., & Costello, K. (2009). Experiencing alien-nation: Effects of a simulation intervention on attitudes toward homosexuals. *Journal of Experimental Social Psychology, 45*(4), 974-978. <https://doi.org/10.1016/j.jesp.2009.02.010>

Experiencing Alien-Nation:

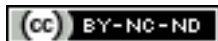
Effects of a Simulation Intervention on Attitudes Toward Homosexuals¹

Gordon Hodson

Becky L. Choma

Kimberly Costello

Brock University



© 2020. This manuscript version is made available under the CC-BY-NC-ND 4.0 license <http://creativecommons.org/licenses/by-nc-nd/4.0/>

Word Count: 2498

Sponsored in part by a Social Sciences and Humanities Research Council of Canada grant to the first author (410-2007-2133).

¹ Final submitted copy and does not reflect changes made before publication.

Abstract

The authors explored psychological mechanisms underlying a teaching exercise (Hillman & Martin, 2002) that may improve attitudes toward homosexuals. Heterosexual participants were randomly assigned to a simulation intervention or control lecture condition. In the simulation condition, participants imagined life on an alien planet that inadvertently simulated situational constraints parallel to those faced by homosexuals. The simulation (*vs.* control lecture) produced significantly more intergroup perspective-taking, empathy, and favorable attitudes toward homosexuals and marginalized groups. Tests of a structural equation model supported the assumption that the simulation (*vs.* control) provided an experience that heightened intergroup perspective-taking, which indirectly predicted favorable attitudes via independent cognitive (inclusive intergroup representations) and affective (empathy) paths. The model held after statistically controlling for prior attitudes and ideological individual differences predicting anti-homosexual bias. Implications for prejudice-reduction simulations and intergroup contact are considered.

Experiencing Alien-Nation:

Effects of a Simulation Intervention on Attitudes Toward Homosexuals

Despite declines in self-reported prejudices generally (Dovidio & Gaertner, 2004), overt anti-homosexual biases remain relatively prevalent. A recent Gallup poll (Jones, 2007) indicates that 43% of Americans would not vote for a well-qualified homosexual. In Canada, the prevalence of hate crimes against homosexuals equals those against Muslims and Asians, and is substantially more violent (Pilot survey of hate crime, 2004). Although researchers devote considerable attention to the causes of such prejudice, noticeably less is paid to developing and testing interventions. Successful and easily implemented prejudice interventions remain in demand.

Perspective-taking and role-playing exercises demonstrate strong potential. For instance, instructions to imagine how an outgroup member feels improves attitudes toward the group through elevated empathy (Batson et al., 1997; Vescio, Sechrist, & Paolucci, 2003). Such methods, however, presumably necessitate willingness and ability to perspective-take, a mindset unlikely among prejudice-prone individuals. Overall, role-playing exercises produce mixed results. For example, an intervention wherein students alternatively experienced dominant and subordinate status through arbitrary eye-color rules improved behavioral intentions to stop discrimination by others but not personally-held outgroup attitudes (Byrnes & Kiger, 1990). Other simulations result in little/no attitude change (e.g., Margo, 1983; Wilson, 1971), even when extensive (Sessa, 1996). Some conclude that intergroup role-playing is no better than education-based interventions at reducing prejudice (McGregor, 1993).

A recently introduced teaching exercise (Hillman & Martin, 2002) offers promise. Students imagine crash-landing on an alien planet where humans suffer situational constraints

inadvertently experienced by homosexuals; then discuss their reactions in groups. This hypothetical “Alien-Nation” world is devoid of real-world power differentials and historical conflict, circumventing real-life intergroup threats feeding negative attitudes (Riek, Mania, & Gaertner, 2006). Moreover, participants role-play *themselves* in a foreign situation, providing an outgroup-relevant *alienation* experience, rather than role-playing the outgroup (see Supplemental Appendix). This exercise may sidestep inability or unwillingness to perspective-take.

Although Hillman and Martin (2002) reported improved attitudes toward homosexuals, we additionally consider mediating mechanisms. Galinsky and Moskowitz (2000) argue that “the probability of perspective-taking increases when one has endured the same slings and arrows as the target person” (p.709). Therefore, when heterosexual Alien-Nation participants experience situational constraints common to those imposed on homosexuals, intergroup perspective-taking (ITG-PT) is likely enhanced. Perspective-taking an individual outgroup member increases empathy, subsequently improving outgroup attitudes (Batson et al., 1997; Batson, Chang, Orr, & Rowland, 2002; Vescio et al., 2003). Relatedly, learning about discrimination faced by an outgroup evokes empathy and improves attitudes (Finlay & Stephan, 2000). Similarly, we anticipate that the Alien-Nation simulation promotes ITG-PT, fostering positive group attitudes through heightened emotional empathy (i.e., compassion, warmth).

At a cognitive level, ITG-PT is expected to accentuate inclusive intergroup representations (i.e., “we/us” vs. “they/them”; see Gaertner, Mann, Murrell, & Dovidio, 1989). In the alien-exercise, participants learn of earthling victimization following behaviors common to participants (e.g., kissing), presumably boosting common-fate perceptions (“that could happen to me too”) that promote a sense of “we” (Gaertner et al., 1989). Including another person in one’s self-concept produces favorable attitudes toward the other (Aron, Aron, Tudor, & Nelson, 1991)

and toward their group (Hodson, Harry, & Mitchell, in press). Perspective-taking generally increases overlap between self and outgroup (i.e., elderly; Galinsky & Moscovitz, 2000, Expt 2). We anticipate that ITG-PT (i.e., perceiving *oneself* in the shoes of *outgroup members generally*) enhances inclusive intergroup representations (i.e., diminished group differences), subsequently predicting positive outgroup attitudes.

Several questions about the original Alien-Nation study (Hillman & Martin, 2002) remain. Although random assignment was employed, their results suggest that pre-existing attitude differences may account for reported between-group differences, making replication and confirmation imperative. We also examine whether perspective-taking is enhanced, and whether ITG-PT increases empathy and inclusive intergroup representations in explaining positive intergroup attitudes. We additionally consider whether ideological variables predicting anti-homosexual bias (social dominance orientation, authoritarianism, religious fundamentalism, conservatism) limit its efficacy. Finally, we consider whether attitude benefits last over time and generalize to other outgroups. Overall, the Alien-Nation simulation is expected to improve attitudes toward homosexuals, providing an intergroup perspective-taking (ITG-PT) experience that enhances empathy and inclusive intergroup perceptions.

Methods

Participants

Second-year psychology students at a Canadian university participated (164 people took part in at least one session). Two participants were omitted from analyses (one homosexual, one unknown orientation). The pre-experimental data session consisted of 130 individuals (27 men, 100 women, 1 unspecified; $M_{\text{age}}=20.80$, $SD=4.07$, range=18-50), the majority White (93.8%). The experimental data session consisted of 128 individuals, with 101 heterosexuals participating

in both sessions. Data from the initial session are used as statistical controls where appropriate, whereas key comparisons between experimental and control groups are conducted using experimental-session data. At the experimental session, participants were tested in 40-min seminar sessions linked to a university course, randomly assigning 8 seminars to the experimental simulation condition ($n = 79$) and 3 to control lectures ($n = 22$).

Procedure

Pre-experimental session. Questionnaires used 7-point rating scales unless otherwise noted. Participants were administered a 5-item ITG-PT scale (Hodson, Choma, & Costello, 2008). A sample item reads “I can view the world as most homosexuals view the world” ($\alpha=.75$). Empathy was assessed with the Batson et al. (1997) 6-item empathy scale: participants rated being [sympathetic towards/compassionate towards/soft-hearted towards/warm towards/tender towards/moved by] homosexuals ($\alpha=.93$). Two items (following Gaertner et al., 1989) tapped cognitive intergroup representations that heterosexuals and homosexuals belong to a shared superordinate group (humans) and “play on the same team”, averaged to form an *inclusive intergroup categorization* measure.

Attitudes toward homosexuals and other marginalized groups (immigrants, ethnic minorities, Jews, Natives/1st Nations, drug addicts, Muslims, obese people) were assessed using 0-100 thermometer scales (Haddock, Zanna, & Esses, 1993). Participants completed the 16-item SDO scale (Pratto et al., 1994; $\alpha=.87$), a shortened 12-item RWA scale (from Altemeyer, 1996; $\alpha=.84$), a shortened 7-item Religious Fundamentalism Scale (Altemeyer & Hunsberger, 2004; 9-point scale $\alpha=.89$), and three items ($\alpha=.83$) tapping political orientation (liberalism to conservatism) generally, socially, and economically (Skikta, Mullen, Griffin, Hutchinson, & Chamberlin, 2002). Participants then provided demographic information.

Experimental session (4 weeks later). In the experimental condition (Alien-Nation simulation) participants formed small teams of 4-5 and imagined crash-landing on an alien planet with 3000 students (Hillman & Martin, 2002). Aliens purportedly live in same-sex housing, use artificial procreation methods, prohibit public displays of affection, and strictly discipline rule violators. Political opposition is purportedly met with hostile resistance, yet humans are otherwise well-treated (see Supplemental Appendix). At no point did researchers allude to homosexuality.

Experimental participants then discussed their Alien-Nation experience, answering scripted questions for 20-min in small groups, afterwards verbally disclosing their reactions (see Hillman & Martin, 2002). Many negative emotions emerged, as did intentions to maintain their lifestyles, secretly identify themselves to ingroup members, and hide romantic activities (see Supplemental Table A). These reactions, expressed by heterosexuals in the alien context, overlap largely with reactions of homosexuals in our societal context. Finally, experimental participants considered how the simulation applies to real-life groups. Participants overwhelmingly failed to identify homosexuals (see also Hillman & Martin, 2002). Research assistants suggested *homosexuals* and drew attention to how situational factors (such as those experienced by homosexuals) might explain behaviors and lifestyle choices.

Participants assigned to the control condition were given an educational lecture on homophobia and discrimination against gays/lesbians (see Hillman & Martin, 2002). The lecture covered historical classifications of homosexuality as a mental illness, regulations regarding gay/lesbian military service, methods anti-gay organizations use to “cure” homosexuality, and histories of same-sex marriage legislation. No opportunity for discussion was provided. Lecture-based programs discussing discrimination faced by outgroups reduce prejudice (Hughes, Bigler,

& Levy, 2007; McGregor, 1993), making our experimental-versus-control comparisons conservative.

Finally, all participants completed measures of ITG-PT ($\alpha=.81$), inclusive intergroup representations (2-item $r=.45$, $p < .001$), empathy ($\alpha=.95$), and the attitude thermometers (adding the mentally ill). Two items tapped session *enjoyment* ($r=.54$), two assessed *educational benefits* of the session ($r=.56$), and one asked whether the session improved personal attitudes toward homosexuals. One week later participants completed an attitude thermometer regarding homosexuals. Participants privately responded to measures; election-style ballot boxes were used to ensure privacy and anonymity, reducing self-presentation concerns.

Results

Preliminary Analyses

A multivariate between-conditions test on pre-experimental ITG-PT, empathy, inclusive intergroup representations, and homosexual attitudes revealed no overall differences, Pillais=.042, $F(4, 125)=1.38$, $p=.245$. Univariate tests revealed no differences in ITG-PT ($p=.231$), inclusive categorizations ($p=.437$), or attitudes toward homosexuals ($p=.869$). One marginally significant pre-experimental difference on empathy emerged: experimental participants ($M=4.31$) reported higher empathy than control participants ($M=3.76$), $t(128)=1.98$, $p=.050$. Therefore model tests statistically control for prior empathy on all variables. No pre-experimental differences existed on ideological individual differences ($ps \geq .115$) or attitudes toward other marginalized groups ($ps \geq .209$).

Experimental Analyses

A multivariate between-conditions analysis on ITG-PT, inclusive intergroup representations, empathy and attitudes revealed a significant experimental effect, Pillais=.099,

$F(4, 119)=3.28, p=.014$. The Alien-Nation simulation resulted in significantly higher levels of ITG-PT ($M=4.03$) compared to the control lecture ($M=3.07$), $t(126)=2.56, p=.012$, representing a moderate effect ($d=.46$). Experimental (*vs.* control) participants also demonstrated significantly more empathy ($M_s=4.56$ *vs.* 3.77), $t(126)=2.59, d=.46, p=.011$. Most importantly, the Alien-Nation simulation (*vs.* control) produced significantly more favorable attitudes toward homosexuals ($M_s=75.87$ *vs.* 64.26), $t(122)=2.48, d=.45, p=.015$. Inclusive categorizations across simulation and control conditions ($M_s=5.61$ *vs.* 5.68, respectively), were equivalent, $t < 1, ns$, both relatively high.

A generalized outgroup attitude index ($\alpha=.87$), averaging attitudes toward 9 social groups, was created¹. Attitude generalization emerged: experimental (*vs.* control) condition participants reported significantly more favorable attitudes toward outgroups generally ($M_s=67.97$ *vs.* 59.71), $t(96)=2.13, d=.43, p=.036$ (see also Supplemental analyses).

The Alien-Nation simulation (*vs.* control lecture) was expected to improve outgroup attitudes (e.g., homosexuals) by providing an experience mimicking outgroup circumstances, enhancing perspective-taking and heightening perceptions of inclusive intergroup representations and outgroup empathy. A structural equation model (SEM) was tested using AMOS 16.0. The experimental variable was coded 0 (control) or +1 (Alien-Nation simulation). The initial model was fully saturated (i.e., $df=0$) with relations between inclusive categorization and empathy incorporated as correlated error variances. Non-significant paths were then dropped to maximize model parsimony (Kline, 2005).

According to fit criteria (Hu & Bentler, 1999; Kline, 2005), chi-squared values should be non-significant, comparative fit index (CFI) values $> .95$, and root-mean-square-error of approximation (RMSEA) values $< .06$. Exceeding these fit-index criteria, our proposed SEM

model was well-supported, $\chi^2(3)=4.86$, $p=.182$, $\chi^2/df=1.62$, CFI=.987, RMSEA=.070 (see Figure 1). The Alien-Nation simulation (*vs.* control) predicted more favorable attitudes toward homosexuals directly and indirectly. Experiencing the Alien-Nation exercise -- simulating some situational constraints imposed on homosexuals -- resulted in significantly greater ITG-PT ($p < .01$), which subsequently predicted significantly higher levels of inclusive intergroup categorizations and empathy ($ps < .001$), each uniquely predicting more favorable homosexual attitudes ($ps < .001$). Cognitive intergroup representations and empathy were uncorrelated ($\beta = -.03$). We then statistically controlled the influence of initial empathy (due to marginal pre-existing differences) and initial attitudes (as a strong test of attitude improvement) on all variables. All model paths remained significant (see parenthetical path values) and the model demonstrated good fit, $\chi^2(3)=5.00$, $p=.172$, $\chi^2/df=1.67$, CFI=.993, RMSEA=.072.

Indirect effects of predictors on criteria are based on bootstrap samples ($n=1000$) using maximum likelihood procedures (see Table 1 for total, direct, and indirect bias-corrected estimates). The simulation intervention (*vs.* control) exerted significant indirect effects on inclusive intergroup representations and empathy through ITG-PT, and a significant indirect effect on attitudes through all three variables. ITG-PT exerted significant indirect attitude effects through inclusivity perceptions and empathy. In contrast, bootstrap tests of the direct manipulation-on-attitudes effect attained marginal significance. Thus, the indirect (*vs.* direct) influence on attitudes is more reliable.

Individual Differences in Ideological Orientations

Because pre-experimental favorable attitudes toward homosexuals were negatively associated ($ps < .01$) with RWA ($r = -.39$), SDO ($r = -.31$), Religious Fundamentalism ($r = -.29$) and conservatism ($r = -.24$), we re-tested our model statistically controlling not only prior

empathy and prior attitudes (see above) but individual differences on all model variables. All model paths remained statistically significant (see Supplemental Table B) except from manipulation to attitudes (now marginally significant).

Exercise Ratings and Self-Perceived Attitude Change

Experimental (*vs.* control) participants rated their experience as equivalently enjoyable² ($M_s=5.13$ *vs.* 4.80), $t(126)=1.21$, $p=.229$, but marginally more educational ($M_s=4.84$ *vs.* 4.30), $t(126)=1.92$, $p=.058$. Experimental (*vs.* control) participants did not perceive their attitudes to be particularly influenced by the session ($M_s=4.20$ *vs.* 4.00), $t(126) < 1$, *ns*, despite reporting significantly more positive attitudes (see above). The intervention therefore operated beyond participant awareness, limiting demand concerns.

One-Week Delayed Attitude Ratings

Attitudes toward homosexuals one week later were significantly more favorable among experimental ($M = 73.80$) than control ($M = 65.64$) participants, $t(113)=1.61$, $d=.30$, $p=.05$ (1-tailed).

Discussion

As predicted, the Alien-Nation (*vs.* control) simulation promoted more favorable attitudes toward homosexuals³. The SEM test confirms that the Alien simulation enhanced perspective-taking of homosexuals, which impacted favorable attitudes through two simultaneous and independent routes: increased empathy and inclusive intergroup representations. Finlay and Stephan (2000) note that most interventions focus on information-based cognitive approaches, achieving only modest success. In contrast, affective mediators are particularly effective among contact-based interventions (Pettigrew & Tropp, 2008), with the Alien-Nation intervention capitalizing on both routes. Impressively, our path model remained statistically significant after

strong statistical controls, including prior attitudes and ideological individual differences. Simulation effects were also contrasted against a lecture control condition, an effective intervention itself (see McGregor, 1993).

The Alien-Nation simulation and subsequent group discussion provide a backdoor route to ITG-PT, invoking an ingroup experience paralleling real-life outgroup experiences. The simulation apparently frees participants to explore a hypothetical threat-free outgroup-relevant context, gaining perspective about situational constraints imposed on life-style choices and behaviors. The group discussion then orients this perspective-taking experience onto homosexuals as a real-life target unobtrusively relevant to the simulation. This clever obfuscation of real-life intergroup implications is reminiscent of Star Trek episodes inviting viewers to contemplate intergroup conflict in fictitious cultures, with this thinly-disguised morality-play shedding light on American interracial relations⁴. In the Alien-Nation simulation, objectives are similarly obscured and the role of the “teacher” is remote, minimizing risks of bias transfer from teachers (see Byrnes & Kiger, 1990), experimental demand, and reactance. The Alien-Nation simulation is easily administered, requires no extensive training, and reduces prejudice. Future researchers might tease apart the influence from the simulation and the group discussion, and determine effects on implicit attitudes. Subsequent researchers might explore procedural modifications to effectively target other outgroup prejudices.

Closing Remarks

The Oxford English Dictionary defines the verb *to alienate* as: “cause to feel *isolated*; lose or destroy the support or *sympathy* of” (italics added). Intriguingly, these elements were captured by our modeled mediators of ITG-PT effects on attitudes: low inclusivity (i.e., high exclusion) and low empathy, respectively. Engaging heterosexuals in an outgroup-relevant

alienation simulation, walking a mile in the shoes (or moonboots) of homosexuals, enhanced ITG-PT and positively impacted outgroup attitudes through these factors of isolation/exclusion and sympathy. The simulation can be integrated with traditional contact-based interventions, setting the stage for favorable contact.

References

- Altemeyer, B. (1996). *The authoritarian specter*. Cambridge, MA: Harvard University Press.
- Altemeyer, B., & Hunsberger, B. (2004). A revised religious fundamentalism scale: The short and sweet of it. *The International Journal for the Psychology of Religion, 14*, 47-54.
- Batson, C.D., Chang, J., Orr, R., & Rowland, J. (2002). Empathy, attitudes, and action: Can feeling for a member of a stigmatized group motivate one to help the group? *Personality and Social Psychology Bulletin, 28*, 1656-1666.
- Batson, C. D., Polycarpou, M. P., Harmon-Jones, E., Imhoff, H. J., Mitchener, E. C., Bednar, L., et al (1997). Empathy and attitudes: Can feeling for a member of a stigmatized group improve feelings toward the group? *Journal of Personality and Social Psychology, 72*, 105-118.
- Byrnes, D.A., & Kiger, G. (1990). The effect of a prejudice reduction simulation on attitude change. *Journal of Applied Social Psychology, 20*, 341-356.
- Dovidio, J.F., & Gaertner, S.L. (2004). Aversive racism. *Advances in experimental social psychology* (Vol. 36, pp. 1-52). San Diego, CA: Elsevier.
- Finlay, K.A., & Stephan, W.G. (2000). Improving intergroup relations: The effects of empathy on racial attitudes. *Journal of Applied Social Psychology, 30*, 1720-1737.
- Gaertner, S.L., Mann, J., Murrell, A., & Dovidio, J.F. (1989). Reducing intergroup bias: The benefits of recategorization. *Journal of Personality and Social Psychology, 57*, 239-249.
- Galinsky, A.D., & Moscovitz, G.B. (2000). Perspective-taking: Decreasing stereotype expression, stereotype accessibility, and in-group favoritism. *Journal of Personality and Social Psychology, 78*, 708-724.

- Haddock, G., Zanna, M.P., & Esses, V.M. (1993). Assessing the structure of prejudicial attitudes: The case of attitudes toward homosexuals. *Journal of Personality and Social Psychology, 65*, 1105-1118.
- Hodson, G., Harry, H., & Mitchell, A. (in press). Independent benefits of contact and friendship on attitudes toward homosexuals among authoritarians and highly identified heterosexuals. *European Journal of Social Psychology*.
- Hodson, G., Choma, B.L., & Costello, K. (2008). Individual differences in intergroup perspective-taking. *Manuscript in preparation*.
- Hillman, J., & Martin, R. A. (2002). Lessons about gay and lesbian lives: A spaceship exercise. *Teaching of Psychology, 29*, 308-311.
- Hu, L.T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1–55.
- Hughes, J.M., Bigler, R.S., & Levy, S.R. (2007). Consequences of learning about historical racism among European American and African American children. *Child Development, 78*, 1689-1705.
- Jones, J.M. (2007, February 20). Some Americans reluctant to vote for Mormon, 72-year-old presidential candidates. Retrieved February 14, 2008, from the Gallup website: <http://www.gallup.com/poll/26611/Some-Americans-Reluctant-Vote-Mormon-72YearOld-Presidential-Candidates.aspx>
- Kline, R.B. (2005). *Principles and practice of structural equation modeling* (2nd ed). New York: Guilford Press.
- Margo, B.C. (1983). Modifying attitudes toward physically disabled handicapped children. *Perceptual and Motor Skills, 56*, 1002.

- McGregor, J. (1993). Effectiveness of role playing and antiracist teaching in reducing student prejudice. *Journal of Educational Research, 86*, 215-226.
- Pettigrew, T.F., & Tropp, L.R. (2008). How does intergroup contact reduce prejudice? Meta-analytic tests of three mediators. *European Journal of Social Psychology, 38*, 922-934.
- Pilot survey of hate crime (2004, June 1). Retrieved February 14, 2008 from the Statistics Canada website: <http://www.statscan.ca/Daily/English/040601/d040601a.htm>
- Pratto, F., Sidanius, J., Stallworth, L. M., & Malle, B. F. (1994). Social dominance orientation: A personality variable predicting social and political attitudes. *Journal of Personality and Social Psychology, 67*, 741-763.
- Riek, B.M., Mania, E.W., & Gaertner, S.L. (2006). Intergroup threat and outgroup attitudes: A meta-analytic review. *Personality and Social Psychology Review, 10*, 336-353.
- Sessa, V.I. (1996). Using perspective taking to manage conflict and affect in teams. *Journal of Applied Behavioral Science, 32*, 101-115.
- Skikta, L. J., Mullen, E., Griffin, T., Hutchinson, S., & Chamberlin, B. (2002). Dispositions, scripts, or motivated correction? Understanding ideological differences in explanations for social problems. *Journal of Personality and Social Psychology, 83*, 470-487.
- Vescio, T. K., Sechrist, G., & Paolucci, M. P. (2003). Perspective taking and prejudice reduction: The mediational role of empathy arousal and situational attributions. *European Journal of Social Psychology, 33*, 455-472.
- Wilson, E.D. (1971). A comparison of the effects of deafness simulation and observation upon attitudes, anxiety, and behavior manifestation toward the deaf. *Journal of Special Education, 3*, 303-307.

Footnotes

¹ Participants in 3⁺ groups excluded.

² Ideologically-oriented participants disliked the simulation (RWA $r = -.24$, SDO $r = -.23$, religious fundamentalism $r = -.31$, $ps < .05$).

³ Between sessions, attitudes improved in the experimental ($p = .029$) not control ($p = .883$) condition.

⁴ Thanks to Roger Giner-Sorolla for this observation.

Supplemental Table A

Group-Level Responses to Experimental Simulation in Open Discussion

Theme	% of groups discussing theme
Experience negative emotions (e.g., depression, fear, anger, stress)	100.00
Maintain Earth lifestyle	67.74
Secretive forms of identification (e.g., tattoos, hairstyles, pins, distinctive clothing)	80.65
Form underground societies and clubs	41.94
Hide romantic activity	74.19
Lead a “double life”	45.16
Move together to one specific city or neighborhood	25.81
Incite violence	19.35
Prefer to associate primarily with Earthlings	41.94
Brain washing/converting Aliens	29.03
Incite change through the political system	22.58

Note. Based on themes in Hillman and Martin (2002, p.309).

Table 1

Standardized Total, Direct, and Indirect Effects of Alien-Nation Manipulation and Intergroup Perspective-Taking on Favorable Attitudes Toward Homosexuals.

Criterion	Predictor					
	Manipulation (simulation vs. control lecture)			Intergroup Perspective Taking (ITG-PT)		
	Total	Direct	Indirect	Total	Direct	Indirect
ITG-PT	.22**	.22**	--	--	--	--
Inclusivity	.09**	--	.09**	.40**	.40**	--
Empathy	.12**	--	.12**	.52**	.52**	--
Attitude	.21**	.13 [‡]	.08**	.37**	--	.37**

Note. Tests of Figure 1 model; effects derived through bootstrapping procedures. [‡] $p < .10$; ** $p \leq .01$.

Supplemental Table B

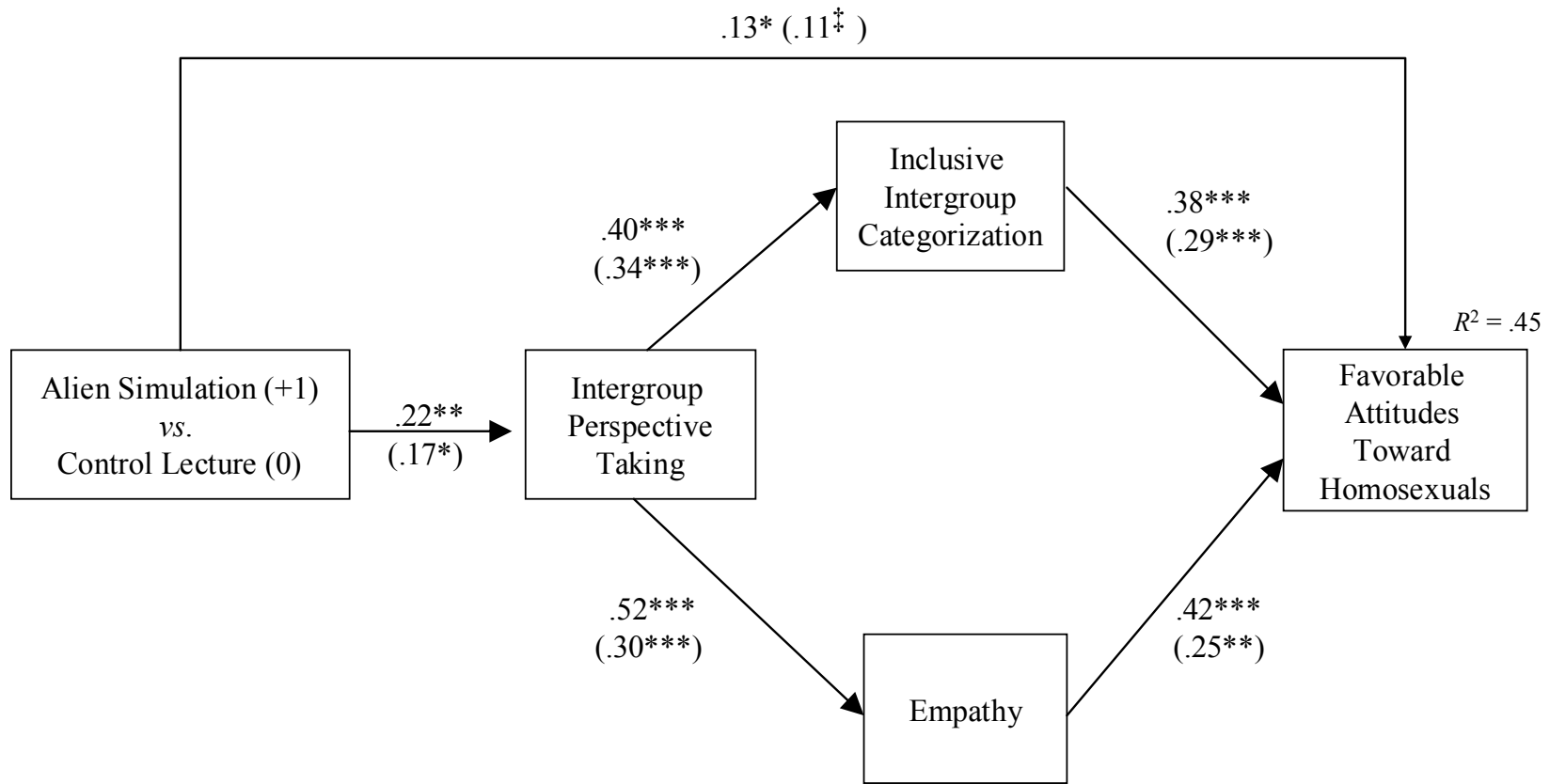
Descriptions of Path Analyses Controlling for Prior Empathy, Attitudes Toward Homosexuals, and Individual Differences

Right-Wing Authoritarianism			Social Dominance Orientation			Religious Fundamentalism			Conservatism		
Predictor	Criterion	Path	Predictor	Criterion	Path	Predictor	Criterion	Path	Predictor	Criterion	Path
RWA	Manip.	.03	SDO	Manip.	-.05	Fund	Manip.	-.11	Conserv.	Manip.	-.05
	ITG-PT	-.09		ITG-PT	-.25**		ITG-PT	.01		ITG-PT	-.12
	Inclusive	-.33***		Inclusive	-.27**		Inclusive	-.17‡		Inclusive	-.17
	Empathy	.03		Empathy	.11		Empathy	-.09		Empathy	-.10
	Attitude	-.06		Attitude	-.08		Attitude	-.02		Attitude	-.12
Manip.	ITG-PT	.18*	Manip.	ITG-PT	.17*	Manip.	ITG-PT	.18*	Manip.	ITG-PT	.17*
	Attitude	.11‡		Attitude	.10‡		Attitude	.11‡		Attitude	.11‡
ITG-PT	Inclusive	.31***	ITG-PT	Inclusive	.27**	ITG-PT	Inclusive	.33***	ITG-PT	Inclusive	.32***
	Empathy	.30**		Empathy	.33***		Empathy	.30***		Empathy	.28***
Inclusive	Attitude	.28***	Inclusive	Attitude	.27***	Inclusive	Attitude	.29***	Inclusive	Attitude	.27***
Empathy	Attitude	.26**	Empathy	Attitude	.26**	Empathy	Attitude	.25**	Empathy	Attitude	.23**

Note. Manip = simulation vs. lecture manipulation; ITG-PT = intergroup perspective-taking; RWA = right-wing authoritarianism; SDO = social dominance orientation; Fund = Religious Fundamentalism; Conserv = conservatism. Standardized path coefficients. ‡ $p \leq .065$; * $p < .05$; ** $p < .01$; *** $p < .001$

Figure Captions

Figure 1. SEM test of Alien-Nation simulation effects on attitudes toward homosexuals (non-significant paths deleted). Parenthetical values represent statistical control of prior empathy and attitude measures on all variables. All paths standardized. ‡ $p=.05$; * $p<.05$; ** $p<.01$; *** $p<.001$



$\chi^2(3) = 4.86, p = .182$
 $\chi^2/df = 1.62$
 CFI = .987
 RMSEA = .070

Figure 1.

Word Count: 197

SUPPLEMENTAL ANALYSES

Refined Analyses of Outgroup Generalization

We further refined the outgroup generalization analyses. Participants in the simulation (vs. lecture control) condition demonstrated significantly more positive attitudes toward Jews and individuals with mental illness ($ps \leq .042$). Relatively foreign and clearly distinct target groups, such as immigrants, ethnic minorities, and Muslims, were rated marginally more favorably in the simulation than control condition ($.05 < ps \leq .08$). Ratings of Natives, drug addicts, and obese persons did not differ as a function of experimental condition ($ps \geq .142$).

Supplemental Appendix: Alien Simulation (from Hillman & Martin, 2002, pp. 310-11).

Imagine that you have crash-landed on an alien planet, Aurora, along with 3000 other students. The inhabitants of this new planet, Aurora, appear remarkably Earth-like and friendly. They speak English, and it is impossible to look at someone and tell if they are an earthling or if they are from Aurora. You also learn that the Aurorans live only in same-sex housing and that their children are produced under strict government control—in a laboratory via artificial insemination. In sum, the public or private display of affection is strictly forbidden. And, the consequences for violating these norms appear severe. To illustrate the severity of punishment for violating the Auroran’s cultural norms, you hear that two earthlings sitting in a restaurant holding hands were beaten and run out of the establishment. Another earthling who kissed someone on the cheek in public was reported missing the next day and has not been heard from since. You become angry and go to the local government to voice a complaint. After you present your case, two guards rough you up and throw you out on the street. One says quietly in your ear, “If you’re smart, you won’t bring that kind of thing up again.” Despite these problems, the Aurorans express a desire to welcome you to their planet. They provide each of you with an apartment, a job, and a small car. Unfortunately, your spaceship was damaged beyond repair, and the Aurorans do not have advanced technology for space travel. All hope of escaping from the planet is gone. You also learn that the planet’s only hospitable land mass is approximately the size of Texas, with similar numbers of inhabitants in urban, suburban, and rural areas. Now, you must decide what you will do, on Aurora.