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# Being out of the loop on pop culture

Nicole Elizabeth Iannone  
*Purdue University*

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Janice R. Kelly

Chair

Kipling D. Williams

William G. Graziano

James M. Tyler

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Approved by Major Professor(s): Janice R. Kelly

Approved by: Christopher R. Agnew

Head of the Departmental Graduate Program

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Date



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A Dissertation

Submitted to the Faculty

of

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by

Nicole Elizabeth Iannone

In Partial Fulfillment of the

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## ABSTRACT

Iannone, Nicole Elizabeth. Ph.D., Purdue University, May 2015. Being Out of the Loop on Pop Culture. Major Professor: Janice R. Kelly.

Being out of the loop is a form of partial ostracism that leads to lower need satisfaction (Jones, Carter-Sowell, Kelly, & Williams, 2009). Research has shown that people experience lower need satisfaction when they are out of the loop on pop culture (Iannone, Kelly, & Williams, in preparation). Five studies expanded on previous research by exploring theoretical issues and potential boundary conditions. Study 1 developed a new method and explored theoretical foundations of being out of the loop on pop culture - whether being unfamiliar makes people feel worse or whether being familiar makes people feel better. This study also looked at whether people need to be told that others recognize the pop culture stimuli. Study 2 explored whether the feeling of failure associated with feeling out of the loop can be eliminated, or whether they coexist. Studies 3-5 explored potential boundary conditions of being out of the loop on pop culture: *who* people are out of the loop from, *what* people are out of the loop on, and *when* people are out of the loop. These studies replicated previous findings of lower need satisfaction when out of the loop on pop culture while also demonstrating that 1) being unfamiliar with pop culture makes people feel worse rather than being familiar with pop culture making people feel better 2) failure and feeling out of the

loop may coexist and 3) individuals feel bad regardless of *who* they are out of the loop from, *what* they are out of the loop on, and *when* they are out of the loop. These findings suggest that being unfamiliar with pop culture may be extremely negative, as no factors seem to ameliorate the negative effects.

## INTRODUCTION

Imagine standing in the checkout line at the grocery store. The person in front of you has a lot of items so you survey the magazine rack. As you look at the popular entertainment magazine covers, you realize you don't recognize many of the people depicted. When you pick up and browse through one of the magazines, most of the people are unfamiliar. How would this experience make you feel? You may feel a bit disconnected, and you would most likely feel out of the loop. The present studies concern how being out of the loop on pop culture may produce negative psychological consequences similar to other exclusion situations (Williams, 2009).

### **Being Out of the Loop and Ostracism Literature**

Being out of the loop is conceptualized as a form of partial ostracism (Jones, Carter-Sowell, Kelly, & Williams, 2009). Ostracism is defined as being excluded and ignored and can vary from partial to complete (Williams, 2001; 2009). It is thought to have been evolutionarily beneficial to detect and avoid ostracism, as humans have a fundamental need to belong resulting from the enhanced survival attained by remaining in groups (Baumeister & Leary, 1995). As a result, a sensitive ostracism detection system may have developed to aid in preventing abandonment by the group (Kerr & Levine, 2008; Spoor & Williams, 2007).

This sensitive ostracism detection system also leads individuals to experience the negative effects of ostracism even when the ostracism experience seems trivial, or rationally beneficial. For example, participants experienced the negative effects of ostracism even when excluded in an electronic ball-toss game by a computer (Zadro, Williams, & Richardson, 2004) or by despised outgroup members (Gonsalkorale & Williams, 2007), and when being included would cost money (van Beest & Williams, 2006). Ostracism detection, therefore, is particularly sensitive, not necessarily logical, and likely of evolutionary origins.

Because of this sensitive ostracism detection system, partial ostracism is also easily detected and leads to negative psychological consequences (Faulkner, 1999; Williams, Cheung, & Choi, 2000). Recent research has explored partial ostracism in the form of being out of the loop (Jones, Carter-Sowell, & Kelly, 2011; Jones et al., 2009; Jones & Kelly, 2010). Being out of the loop is a type of partial ostracism because it occurs when one is fully included in a group, but excluded from a domain of information known to others. Similar to those who are fully ostracized (Williams, 2009), people who are out of the loop report less need satisfaction (for the four fundamental needs of belonging, self-esteem, meaningful existence, and control), less competence, and more negative moods (Jones et al., 2009).

The negative consequences of being out of the loop have been explored multiple times using interacting or fake groups (Jones et al., 2011; Jones et al., 2009; Jones & Kelly, 2010). Research utilizing a typical information-sharing paradigm showed that people with unique expertise, or who were out of the loop from the shared expertise, also experienced negative psychological consequences (Jones & Kelly,

2013). Unlike ostracism which is difficult to moderate, the effects of being out of the loop are sometimes worse dependent on the context. The negative effects of being out of the loop were worse when information exclusion seemed intentional and preventable (Jones & Kelly, 2010). The negative consequences of being out of the loop were also worse when others were responsible for leaving participants out of the loop, rather than because of a computer randomly distributing information (Jones et al., 2009).

Additionally, being out of the loop may lead to less participation in a group (Jones et al., 2011) and less liking and trust of group members (Jones et al., 2009). Thus, being out of the loop has many negative psychological consequences similar to ostracism, and negative consequences for the group as well, although the effects of being out of the loop can be more amenable to moderation compared to full ostracism.

Even minimal conditions of exclusion can lead to negative psychological consequences, due to the sensitive ostracism detection system (Williams & Zadro, 2005). For example, Schmitt and colleagues (2010) found that simply sitting in a cubicle with a small Christmas display decreased the well-being of non-Christians and non-Christmas-celebrators. Further, this effect was mediated by reduced feelings of inclusion. Additional research has shown that using gender-exclusive language when describing a work environment leads women to expect more ostracism at the workplace, expect to experience lower belonging at the workplace, and actually experience less belonging during a “job interview” (Stout & Dasgupta, 2011). Thus, even subtle language differences that women are exposed to everyday impacts women’s senses of belonging and expectations for ostracism.

## Popular Culture

Whereas awareness has been raised about exclusion because of religion or by using sexist language, we focus on an unwitting source of exclusion for which there is little concern: exposure to pop culture references. Popular culture has been defined as “the entirety of ideas, perspectives, attitudes, memes, images, and other phenomena that are within the mainstream of a given culture...” (Wikipedia). We are exposed to elements of pop culture frequently via many means (e.g., magazines, television, the Internet, water cooler conversations), and we assume that most people are familiar with them. Anecdotally, when we asked our students how many times a day they were exposed to pop culture, responses included “almost the whole day, except when sleeping,” “most of the time,” and “all the time.”

Pop culture is becoming increasingly important to our lives, with a new APA journal even dedicated to the topic, “*Psychology of Popular Media Culture*.” In the inaugural issue, an editorial describes how popular media culture is everywhere and is a dominant force in our lives (Kaufman & Sumerson, 2011). There was even a special edition of the *Review of General Psychology* dedicated to “Human Nature and Pop Culture” (Fisher & Salmon, 2012). This issue describes how pop culture is a part of human nature that provides information relevant to our daily lives (Fisher & Salmon, 2012). John Fiske (2010) suggests pop culture can be drawn upon in daily life and may be used to shape people’s lives. The Wikipedia page for Popular Culture suggests that it is “heavily influenced by mass media,” and “permeates the everyday lives of the society.” Thus, popular culture seems to be omnipresent and informs our daily lives. But what happens when we are exposed to popular culture symbols that we don’t

know? Would feeling out of the loop on pop culture elements be so trivial as to be inconsequential, or might it also affect our need satisfaction and mood?

In addition, we extend our knowledge of what makes people feel out of the loop. Being out of the loop has been examined in a small group context where individuals are excluded from information that their other group members mutually know (Jones & Kelly, 2010). When people are out of the loop on pop culture, they are excluded from information that they merely assume is widely known by others. Thus, feeling out of the loop on pop culture would further demonstrate the extreme sensitivity of the ostracism detection system, as the *loop* involves society rather than an interacting, interdependent group.

### **Outcomes of Being Out of the Loop on Pop Culture**

In addition to exploring basic negative psychological consequences, it is important to look at more downstream outcomes of being out of the loop on pop culture. If being out of the loop on pop culture makes people feel out of the loop from society, they may feel the need to engage in society more, or the opposite, to disengage. Research suggests that people may attempt to fortify depleted needs from ostracism in two different ways. One is by trying to re-connect and get back in with people, usually in response to lowered belongingness and self-esteem needs. Past research showed that following social exclusion, participants were more likely to be interested in social interactions (Maner, DeWall, Baumeister, & Schaller, 2007). The other way people attempt to fortify depleted needs is by becoming more aggressive, in response to lowered control and meaningful existence needs (Warburton, Williams, & Cairns, 2006).



Repeated experiences of being out of the loop may lead to consequences similar to the resignation stage of ostracism, when people have experienced long-term ostracism (Williams, 2009). Williams (2009) suggests that if participants' needs are consistently thwarted with unsuccessful need fortification, they may experience a variety of long-term consequences. These consequences could be alienation and detachment, depression, sense of worthlessness, and learned helplessness.

Thus, we propose that two different types of consequences are possible. The first are positive consequences of being out of the loop, which involve the possibility of re-engaging and experiencing need fortification. To look at this we will measure immediate pop culture behavioral intentions (e.g., wanting to watch TV, go on the internet, etc.) and pop culture engagement (e.g., desire to go to the movies, go to a concert, etc.). Both of these assess possible re-engagement, although it is also possible people may choose to demonstrate disengagement through these measures as well.

The second type of consequences are negative consequences that involve possible resignation-like outcomes. These types of consequences may occur when the ability to fortify needs doesn't seem possible and overall disengagement seems more productive (e.g., after a failed attempt at re-engaging in popular culture). Life disengagement (Scheir et al., 2006), anomie (Durkheim, 1897), and lower self-efficacy (Bandura, 1997) are the possible negative consequences we'll measure.

### **Previous Research**

Iannone, Kelly, and Williams (in preparation) conducted three studies examining whether being exposed to unfamiliar pop culture targets would lead people to feel out of the loop, as well as leading to lower need satisfaction and a worse mood.

These studies manipulated the familiarity of various pop culture targets: actors, musicians, and brand logos. Before viewing the targets, participants were told that a majority of pre-test subjects could recognize the targets. Half of the participants viewed targets that were pretested as familiar and the other half viewed targets that were pretested as unfamiliar, and they were asked to report their own familiarity with the targets. After rating their familiarity with the targets, participants reported their basic need satisfaction and mood (Williams, 2009) and how out of the loop they felt.

The results of these studies suggest that people do feel out of the loop when viewing unfamiliar pop culture targets and consequently experience lower need satisfaction and (sometimes) a more negative mood. Study 1a ( $n = 25$ ) found that participants viewing unfamiliar actors reported feeling more out of the loop, lower need satisfaction, and a more negative mood. Study 1b ( $n = 42$ ) replicated these findings using musicians as the pop culture targets instead of actors. Finally, Study 2 ( $n = 54$ ) produced similar findings using brand logos as the pop culture targets, although the effect on mood was not significant (however, the means trended in the same direction). Study 2 also attempted to examine a potential boundary condition – self-rated pop culture importance. Participants rated the importance of pop culture to them prior to the manipulation. However, when this was included in the analysis as a moderator, there was still a significant main effect of need satisfaction, a non-significant main effect of mood, and no interaction on either dependent variable. Thus, initial evidence suggests that importance does not play a role - even if you do not find pop culture important, you still experience lower need satisfaction when unfamiliar with pop culture. Study 2 also explored whether people viewing unfamiliar brand logos

experienced more feelings of failure when they were completing the task compared to people viewing familiar logos. Results showed that participants in the unfamiliar condition felt as if they failed more than participants in the familiar condition. This leaves a question of whether failure co-exists with being out of the loop or if it can be disentangled from the out of the loop feeling.

In order to examine the effects across all three studies, we conducted an inverse-variance weighted meta-analysis on the three dependent variables that appear in each study: feeling out of the loop, need satisfaction, and mood. Using Wilson's SPSS MeanES macro (2005), we calculated Cohen's  $d$ 's and confidence intervals for each variable. A confidence interval that excludes zero is interpreted as a significant effect (Lipsey & Wilson, 2001). For the feeling out of the loop variable, we obtained a large effect size,  $d = .82$ , 95% CI [.45, 1.19], showing a significant effect of familiarity condition on feeling out of the loop. For the need satisfaction variable we obtain a medium to large effect size,  $d = .76$ , 95% CI [.39, 1.13], displaying a significant effect of familiarity condition on need satisfaction. Finally, for the mood variable we obtain a medium effect size,  $d = .57$ , 95% CI [.21, .94], and a significant effect of familiarity condition on mood. Thus, overall, these effects are sustained across multiple studies.

Taken together, these three studies demonstrate that not recognizing pop culture targets that people believe they should recognize leads to feeling more out of the loop, lower need satisfaction, and a more negative mood. These results suggest that our sensitive ostracism detection system detects something seemingly as innocuous as being out of the loop on pop culture similarly to other types of exclusion. Perhaps

being out of the loop on pop culture could lead to exclusion further down the road, thus leading to quick detection of this possibility.

### **Present Research**

Although the previous research established that the effect of being out of the loop on pop culture exists and seems to be pervasive, there is still a need to search for boundary conditions of this effect. Additionally, addressing a few methodological limitations could improve the theoretical contribution of these initial findings. Thus, the present research seeks to improve upon the previous studies by exploring theoretical issues and to further explore the potential boundaries of the effect.

In order to address some theoretical issues, we developed a new paradigm in Study 1. Importantly, the previous three studies utilized different pop culture targets and found similar effects. However, they all used the same basic methodology. Thus, developing a new paradigm to explore the effect of being out of the loop on pop culture would increase the validity of the results.

One issue that has been present in the past method was the participants' feeling of failure being confounded with being out of the loop in the unfamiliar condition. It is important to attempt to separate this feeling of failure from the feeling of being out of the loop. Thus, in Study 2 we attempted to create a paradigm where participants still feel out of the loop yet don't feel like they've failed to see if this feeling of failure can be separated from feeling out of the loop or if it potentially co-exists with being out of the loop.

Additionally, boundary conditions of the effect need to be assessed. Boundary conditions of this effect may come in a few forms. One is *who* people are out of the

loop from, (e.g., are they out of the loop from their friends vs. strangers). Another is *what* people are out of the loop on (e.g., are people out of the loop on very relevant pop culture targets or not very relevant pop culture targets). Finally, does *when* people are out of the loop matter (e.g., are they out of the loop when it is important vs. unimportant to be in the loop).

Study 3 examined whether *who* people are out of the loop from matters by manipulating whether people are out of the loop from their ingroup or outgroup. Study 4 looked at whether *what* people are out of the loop on matters by manipulating whether people are out of the loop on relevant or irrelevant information. Finally, Study 5 explored whether *when* people are out of the loop matters by manipulating the desirability of being in or out of the loop.

## STUDY 1

The goal of Study 1 was to develop a new paradigm that explores theoretical issues that could not be looked at with the existing paradigm. The new paradigm used a more subtle manipulation of familiarity – simply being exposed to pop culture stimuli under the guise of a personal preferences quiz. In the prior studies, participants were informed that a majority of pre-test subjects could recognize the targets. Here we tested whether the effect would hold through simple exposure to pop culture targets, without being informed of others' knowledge.

The new method was a personal preferences quiz (modeled after the popular BuzzFeed quizzes, [buzzfeed.com](http://buzzfeed.com), and other similar online quizzes), in which participants were asked their preferences on a variety of different topics (most of them related to pop culture). The new method was less heavy-handed than asking participants to rate familiarity, where the purpose was clearer. In addition, this method put even less emphasis on performance, because people were simply asked what they prefer with no right or wrong answer. Thus, if people still felt as if they failed it would seem more likely that feelings of failure could not be disentangled from feeling out of the loop. Thus, we again assessed feelings of failure on the task. We also explored another potential consequence of being in the unfamiliar condition – feeling less

competent. If participants do not feel as if they are succeeding at the task, they may also feel less competent.

Finally, in the previous studies, we were not able to determine whether familiarity with pop culture stimuli boosted need satisfaction, or whether unfamiliarity with pop culture stimuli decreased need satisfaction. In the ostracism literature, reports of need satisfaction tend to be no different whether participants are in the inclusion condition or a control condition (Wesselmann, Bagg, & Williams, 2009). The reason for this is likely that inclusion is the default expectation of participants who are tossing a ball or having a conversation. However, it may not be as likely that people assume inclusion in society's loop of pop culture knowledge. Adding a control condition allowed us to determine whether participants in the unfamiliar condition felt worse than baseline, whether the participants in the familiar condition felt better than baseline, or both. Thus, the new method allows us to determine whether it is being in the loop, out of the loop, or both that is important. We hypothesized that participants in the unfamiliar condition would report feeling more out of the loop, lower need satisfaction, and a more negative mood (*Hypotheses 1-3*) than participants in both the familiar and control conditions. It was uncertain whether the familiar condition will be higher or equal to the control condition, so we did not make a specific hypothesis about this. Additionally, we hypothesized that feeling out of the loop would mediate the effect between condition and need satisfaction and mood (as found in our previous research), but feeling as if they failed at the task or feeling incompetent would not (*Hypothesis 4*).

Thus, this new method provided three major theoretical benefits: replicating the results with a new paradigm, presenting the pop culture stimuli in a more subtle way (and testing whether or not people need to be informed that others can recognize the targets), and adding a control condition to determine the direction of the effect.

## **Method**

### **Participants**

One-hundred and fifty-eight<sup>1</sup> Purdue students (104 males,  $M_{\text{age}} = 19.88$ , 77.2% Caucasian) participated for partial course credit in Introductory Psychology courses.

### **Design**

The design of our study was a 3-level between-subjects design - *familiar*, *unfamiliar*, and *control*.

### **Procedure**

Participants completed the study online. Participants first read an informed consent sheet and had to click “I agree” to be directed to the study. They then were asked to complete demographic questions (gender, age, ethnicity, etc.). In order to get baseline importance of pop culture, participants were then asked five questions (four fillers) about how important various interests were to them (e.g., “How important is pop culture to you?”) (please see Appendix B for these questions). These questions were answered on 7-point scales (1 = not at all, 7 = extremely). In order to extend the time between those questions and the manipulation, participants completed the Big 5 personality measure (John & Srivastava, 1999; please see Appendix C for these questions).



Participants were then randomly assigned to either the familiar, unfamiliar, or control condition. Participants were given the following instructions in all conditions: “We are interested in your personal preferences. Please press ‘continue.’” All of the conditions consisted of twenty sets of four objects for which participants indicated which of the four they preferred. The object sets either contained familiar elements of pop culture (familiar movie stars, books, TV shows, etc.) or matched unfamiliar elements of pop culture. The control condition asked people to indicate their preference for sets of neutral objects (shapes, colors, buildings, etc.). The options were given in image form (please see Appendix D for examples). In the familiar and unfamiliar conditions, sixteen of the sets were related to pop culture, and four of the sets were unrelated to pop culture and served as filler items (these were the same across all conditions and asked participants to choose which food they preferred and which city they would prefer to visit). In addition, two familiar options appeared in the unfamiliar set to decrease suspicion, and two unfamiliar options appeared in the familiar set.

Following the manipulation, participants were given need satisfaction and mood questions (Williams, 2009), as well as questions assessing how out of the loop, included, excluded, and ignored they felt. These questions asked them to rate how they felt while indicating their preferences. Additionally, they filled out a manipulation check question, “I recognized most of the options,” on a 7-point scale (1 = strongly disagree, 7 = strongly agree) (please see Appendix E for these questions).

Following these questions, participants answered the same importance questions they filled out at the beginning of the study again (please see Appendix B for these items). They then answered questions assessing behavioral intentions related to

pop culture and pop culture engagement (please see Appendix F for these items). These questions were asked in order to see whether participants expressed more interest in activities related to pop culture after viewing unfamiliar items, in order to “get back in the know,” and re-engage. They also answered questions about pop culture and the quiz (please see Appendix F for these items). Next, participants answered questions about life disengagement (Scheir et al., 2006), anomie (Srole, 1956) and self-efficacy (Schwarzer & Jerusalem, 1995) (please see Appendix G for these questions) to see whether participants experienced more life disengagement, more anomie, or less self-efficacy in the unfamiliar condition (please see Table 1 for correlations among dependent variables and Cronbach’s alphas for aggregate dependent variables).

Finally, participants answered questions assessing whether they felt like they failed from taking the quiz, whether taking the quiz made them feel incompetent, whether they felt sociable, whether they attempted to look up things they weren’t sure of on the internet, and questions about familiarity and interest in BuzzFeed quizzes, an online website that provides pop culture quizzes (please see Appendix H for these questions).<sup>2</sup> They were then debriefed, thanked, and given credit.

## **Results**

### **Analysis Strategy**

In order to assess the effects across three conditions we ran one-way ANOVAs<sup>3</sup> and used Tukey post-hoc tests to examine differences between conditions.

### **Manipulation Check**

We successfully manipulated familiarity. There was a significant effect of condition on recognition of the options,  $F(2, 155) = 35.39, p < .001, \eta_p^2 = .31$ .

Participants in the unfamiliar condition reported significantly less recognition of the options ( $M = 3.27$ ,  $SD = 1.76$ ) than participants in the familiar ( $M = 5.33$ ,  $SD = 1.76$ ),  $p < .001$ , and control conditions ( $M = 5.77$ ,  $SD = 1.29$ ),  $p < .001$ . There was no evidence to support a difference between recognition in the familiar and control conditions,  $p = .352$ .

### **Feeling Out of the Loop**

There was a significant effect of condition on feeling out of the loop,  $F(2, 153) = 14.98$ ,  $p < .001$ ,  $\eta_p^2 = .16$  (please see Table 2 for relationships with all dependent variables). Participants in the unfamiliar condition ( $M = 3.49$ ,  $SD = 1.86$ ) reported feeling significantly more out of the loop than participants in the familiar ( $M = 2.15$ ,  $SD = 1.34$ ),  $p < .001$ , and control conditions ( $M = 2.00$ ,  $SD = 1.31$ ),  $p < .001$ , supporting *Hypothesis 1*. There was no evidence to support a difference of feeling out of the loop between the familiar and control conditions,  $p = .867$ .

### **Need Satisfaction Levels and Mood**

There was a significant effect of condition on need satisfaction,  $F(2, 155) = 9.14$ ,  $p < .001$ ,  $\eta_p^2 = .11$ . As hypothesized, participants in the unfamiliar condition reported feeling significantly less need satisfaction ( $M = 4.64$ ,  $SD = .96$ ) than participants in the familiar ( $M = 5.05$ ,  $SD = .85$ ),  $p = .034$ , and control conditions ( $M = 5.35$ ,  $SD = .71$ ),  $p < .001$ , supporting *Hypothesis 2* (see Figure 1). There was no evidence to support a difference on need satisfaction between the familiar and control conditions,  $p = .181$ .

There was also a significant effect of condition on mood,  $F(2, 155) = 3.95$ ,  $p = .021$ ,  $\eta_p^2 = .05$ . Participants in the unfamiliar condition reported feeling a significantly

more negative mood ( $M = 5.12$ ,  $SD = 1.00$ ) than participants in the control condition ( $M = 5.62$ ,  $SD = .88$ ),  $p = .016$ , supporting the hypothesis. However, participants in the unfamiliar condition did not report feeling a significantly more negative mood than participants in the familiar condition ( $M = 5.42$ ,  $SD = .87$ ),  $p = .211$ . Thus, *Hypothesis 3* was partially supported. There was no evidence to support a difference between the familiar and control conditions,  $p = .503$ .

### **Failure**

Despite removing all performance aspects in this paradigm, participants in the unfamiliar condition still reported feeling as if they failed significantly more ( $M = 2.60$ ,  $SD = 1.91$ ) than participants in the familiar condition ( $M = 1.72$ ,  $SD = 1.12$ ),  $p = .004$ , or the control condition ( $M = 1.62$ ,  $SD = .93$ ),  $p = .001$ ,  $F(2, 154) = 7.90$ ,  $p = .001$ ,  $\eta_p^2 = .09$ . There was no evidence to support a difference between the familiar and control conditions,  $p = .925$ .

### **Self-Rated Pop Culture Importance**

In order to examine whether self-rated pop culture importance affected need satisfaction or mood we conducted regression analyses using Hayes and Matthes (2009) MODPROBE add-in for SPSS. These regressions used familiarity condition (dummy coded such that unfamiliar was always 0, and in one dummy code familiar was 1 and in the other dummy code the control was 1), the centered continuous measure of self-rated importance, and the interaction between each dummy coded variable and self-rated importance as predictors, with need satisfaction and mood as the dependent variables.

For need satisfaction, the effects of both dummy coded condition variables remained significant,  $ps < .01$ , suggesting that the effect of familiarity condition on need satisfaction did not change when importance was accounted for. There was also a significant effect of self-rated importance,  $p = .046$ , such that the more important pop culture was to people, the higher their need satisfaction. However, there was no evidence to suggest that importance of pop culture influenced need satisfaction differently by condition,  $ps > .40$ .

For mood, the effects of both dummy coded condition variables remained significant or marginally significant,  $ps < .08$ , suggesting that familiarity condition still had similar effects even when accounting for importance. There was no evidence to support an effect of self-rated importance on mood,  $p > .28$ , and there was no evidence to suggest that importance of pop culture influenced mood differently by condition,  $ps > .14$ . Thus, across both need satisfaction and mood, there was no evidence to support that self-rated importance impacted the effect of condition, suggesting that people feel bad when they don't recognize pop culture stimuli, regardless of how important pop culture is to them.

### **Internet Behavior**

In order to see whether participants attempted to “get back in the loop” in the unfamiliar condition, we asked participants whether they tried to look things up on the Internet. There was evidence that participants in the unfamiliar condition attempted to get back in the loop, as they reported looking things up significantly more ( $M = 2.20$ ,  $SD = 1.81$ ) than participants in the familiar condition ( $M = 1.54$ ,  $SD = 1.13$ ),  $p = .050$ , and marginally more than participants in the control condition ( $M = 1.60$ ,  $SD = 1.27$ ),  $p$

= .087,  $F(2, 154) = 3.38$ ,  $p = .087$ ,  $\eta_p^2 = .04$ . There was no evidence to support a difference between the familiar and control conditions,  $p = .975$ .

### **Feeling Incompetent**

There was also a significant effect of condition on feeling incompetent. Participants in the unfamiliar condition reported feeling significantly more incompetent ( $M = 2.42$ ,  $SD = 1.79$ ) than participants in the familiar condition ( $M = 1.72$ ,  $SD = 1.12$ ),  $p = .035$ , and marginally more incompetent than participants in the control condition ( $M = 1.83$ ,  $SD = 1.35$ ),  $p = .092$ ,  $F(2, 154) = 3.62$ ,  $p = .029$ ,  $\eta_p^2 = .05$ . There was again no evidence to support a difference between the familiar and control conditions,  $p = .920$ .

### **Behavioral Intentions**

There was also a significant effect of condition on pop culture behavioral intentions. Participants in the control condition reported more pop culture behavioral intentions ( $M = 4.49$ ,  $SD = .84$ ) than participants in the familiar condition ( $M = 3.98$ ,  $SD = .89$ ),  $p = .016$ ,  $F(2, 155) = 3.90$ ,  $p = .022$ ,  $\eta_p^2 = .05$ . There was no evidence to support differences between the familiar and unfamiliar conditions or the unfamiliar and control conditions,  $ps > .33$ .

### **Mediation**

Following the suggestion of Preacher and Hayes (2008), we used 5,000 bootstrap samples for each test to estimate 95% confidence intervals for the indirect effects. This bootstrap technique provides point estimates ( $Bs$ ) and bias-corrected and accelerated (BCA) confidence intervals (CI) for each of the indirect effects.

Bootstrapping analyses were conducted using Hayes's (2013) "PROCESS" SPSS add-in.

Multiple mediators were included in the model simultaneously in order to determine whether feeling out of the loop, feeling as if they failed, or feeling incompetent was a stronger mediator of the familiarity-need satisfaction and familiarity-mood relationships. Feeling incompetent was included as it is related to feelings of failure and could explain the process. Additionally, two mediations were run each time to control for the three conditions. One regression was run with one dummy code as the predictor with the other dummy code added as a covariate, and then the reverse was conducted.

**Need satisfaction level.** Bootstrapping results showed that feeling out of the loop mediated the effect of condition on need satisfaction level with a point estimate of .35 (BCA CI of .20 to .57) and .31 (BCA CI of .16 to .53). However, there was no evidence that feeling as if they failed mediated the effect of condition on need satisfaction level with a point estimate of .13 (BCA CI of -.03 to .37) and .12 (BCA CI of -.02 to .36), nor was there evidence that feeling incompetent mediated the relationship with a point estimate of -.01 (BCA CI of -.13 to .10) and -.01 (BCA CI of -.14 to .11) (see Figure 2). In order to explore whether importance mediated the relationship between familiarity conditions and need satisfaction, we also ran two more multiple mediator models adding self-rated pop culture importance as a mediator. When we did this, there was no evidence that importance mediated the relationship with a point estimate of .01 (BCA CI of -.03 to .09) and -.03 (BCA CI of -.11 to .01),

and, again, only feeling out of the loop did mediate the relationship with a point estimate of .33 (BCA CI of .19 to .55) and .30 (BCA CI of .16 to .50).

**Mood.** Bootstrapping results showed that feeling out of the loop mediated the effect of condition on mood with a point estimate of .37 (BCA CI of .22 to .61) and .34 (BCA CI of .18 to .57). However, there was no evidence that feeling as if they failed mediated the effect of condition on mood with a point estimate of .09 (BCA CI of -.07 to .34) and .08 (BCA CI of -.06 to .33), nor was there evidence that feeling incompetent mediated the relationship with a point estimate of .09 (BCA CI of -.01 to .31) and .10 (BCA CI of -.01 to .31). These mediations support our hypothesis that being out of the loop mediates the relationship between condition and need satisfaction and mood, whereas feelings of failure or feeling incompetent do not. Thus, *Hypothesis 4* was supported. In order to explore whether importance mediated the relationship between familiarity conditions and mood, we also ran two more multiple mediator models adding self-rated pop culture importance as a mediator. When we did this, there was no evidence that importance mediated the relationship with a point estimate of .00 (BCA CI of -.03 to .03) and -.001 (BCA CI of -.05 to .03), and, again, only feeling out of the loop did mediate the relationship with a point estimate of .37 (BCA CI of .22 to .62) and .34 (BCA CI of .18 to .57).

## Discussion

Study 1 replicated results from previous studies using a more subtle method. This paradigm asked people to indicate personal preferences and was designed based on the popular BuzzFeed quizzes. Thus, it is similar to a possible pop culture encounter people could have on a daily basis. This paradigm also eliminated the use of the



instructions that others could recognize the pop culture targets, showing that explicitly mentioning that others recognize the stimuli is not necessary to elicit a feeling of being out of the loop, lower need satisfaction, and more negative mood.

Study 1 also included a control condition that allowed us to determine the direction of the effect. The results indicated that the familiar and control conditions produced similar results to each other, and with few exceptions, the control condition and the unfamiliar conditions were different. This suggests that participants in the unfamiliar conditions experienced lower need satisfaction and more negative mood rather than participants in the familiar condition experiencing a boost in need satisfaction or positive mood.

There was also an unanticipated finding on the behavioral intentions scale where participants in the control condition reported more pop culture behavioral intentions than participants in the familiar condition. This may have occurred because participants in the control condition could have been more bored than participants in the familiar condition and wanted to engage in pop culture activities to alleviate their boredom. The next studies will examine differences in familiar and unfamiliar conditions and reported pop culture behavioral intentions.

We also showed that participants in the unfamiliar condition felt more incompetent than participants in the familiar condition. However, this feeling did not mediate the effect between familiarity and need satisfaction or mood, nor did feeling of failure (replicating findings from previous studies). Although participants in the unfamiliar condition felt as if they failed more than participants in the familiar or control conditions, the effect size of this relationship decreased in Study 1 ( $n_p^2 = .09$ )

from the effect size in a previous study ( $n_p^2 = .62$ ). This decrease in effect size suggests that the paradigm used in this study did reduce the feeling of failure associated with being out of the loop, although did not eliminate it. Thus, Study 1 was able to address some theoretical questions regarding the findings on being out of the loop on pop culture.

## STUDY 2

After developing a new method and demonstrating the direction of the effect, the next study attempted to eliminate the feeling of failure that was present in the previous paradigm. It is unlikely that the feeling of failure is causing our effects rather than being out of the loop, because mediation showed that feeling of failure does not mediate the familiarity-need satisfaction or familiarity-mood relationships. However, if the feeling of failure is always confounded with being out of the loop, we should attempt to eliminate this confound and see whether the negative psychological consequences still exist.

We created a situation where participants were either given positive feedback or neutral feedback for their performance in quickly determining whether they recognized a celebrity or not. Thus, “success” was paired with both recognition and non-recognition, disentangling recognition and failure. We showed participants either familiar or unfamiliar celebrities and gave them either positive feedback or neutral feedback on their reaction time performance.

We still predicted a main effect of familiarity, such that participants in the unfamiliar conditions would report feeling more out of the loop, lower need satisfaction, and less positive mood than participants in the familiar conditions (*Hypotheses 1-3*). Additionally, we expected a main effect of feedback such that

participants in the neutral feedback conditions would report feeling as if they failed more than participants in the positive feedback conditions (*Hypothesis 4*). However, in regards to feeling as if they failed, we predicted a qualifying interaction, such that participants in the *neutral feedback/unfamiliar* condition would feel like they failed on the task more than participants in the *positive feedback/unfamiliar* condition (*Hypothesis 5a*). On the other hand, both familiar conditions, regardless of feedback condition, should not feel as if they failed (*Hypothesis 5b*). We also predicted that feeling as if they failed or feeling incompetent would not mediate the familiarity-need satisfaction or familiarity-mood relationships, but feeling out of the loop would (*Hypothesis 6*).

## **Method**

### **Participants**

Two-hundred and forty-four<sup>4</sup> Purdue students (132 males;  $M_{\text{age}} = 19.4$ ; 77.6% Caucasian) completed the study for partial course credit for Introductory Psychology.

### **Design**

The design of this study was a 2 (familiarity: familiar vs. unfamiliar) x 2 (feedback: positive vs. neutral feedback) between-subjects design.

### **Procedure**

Participants came to the lab for a study on “Current Events.” They were randomly assigned to one of our four conditions. First, they were given an informed consent sheet and signed it to agree to participate. They then completed the same questions as in the beginning of Study 1.

After completing these initial measures, they were given instructions that we are interested in how quickly participants are able to realize whether they recognize a celebrity or not. The instructions said:

“Research shows that people are often inaccurate in their assessments of what they know and do not know. We're interested in this feeling of knowing and how quickly people know whether they recognize someone. We are interested in how quickly you are able to realize whether you recognize popular celebrities or do not recognize them. We are NOT interested in whether you recognize them or not, just how quickly you can realize it. For example, on Jeopardy it is imperative that players realize what they do and do not know very quickly, and this is what we are interested in. You will be presented with sixteen popular celebrities, one at a time. Press "1" on the keyboard if you DO recognize them or "2" on the keyboard if you do NOT recognize them.”

Participants were then shown images of sixteen celebrities. Fourteen of these matched their familiarity condition (fourteen familiar in the familiar condition, fourteen unfamiliar in the unfamiliar condition), whereas two were either unfamiliar in the familiar condition or familiar in the unfamiliar condition, in order to decrease suspicion. Examples of familiar celebrities include Brad Pitt and Jennifer Aniston, and examples of unfamiliar celebrities include Emile Hirsch and Eva Green. On the same page as the image, there were options to select “yes” or “no” for whether they recognized them or not, though participants were instructed to press the “1” or “2” keys

on the number pad to get a quicker reaction time. The keys on the number pad for “1” and “2” had “Y” and “N” on them to aid the participants.

In the positive feedback condition, after each response, participants saw a page that said “Great reaction time!” with a smiley face. In the neutral feedback condition, they saw a page that said “Reaction time registered.”

After completing the task, participants filled out the same need satisfaction, mood, and inclusion, exclusion, ignored, and out of the loop questions from Study 1 (please see Appendix E for these questions). The instructions told participants to think about how they felt during the task, rather than the quiz (as in Study 1). They also answered a similar manipulation check item but phrased “I recognized most of the celebrities in the task,” rather than in the quiz.

They then responded to the same behavioral intention questions, pop culture engagement, pop culture, life disengagement, anomie, and self-efficacy questions (see Appendices E and F), other than anything related to the quiz, from Study 1. Additionally, participants responded to reflective need and mood questions that were the same as the immediate needs and mood questions except phrased in the past tense (e.g., “I feel disconnected,” “I feel negative,”) (see Appendix I for these questions). These questions were added as ostracism research typically does not find moderating effects on the immediate (or reflexive) need satisfaction and mood measures, but does show moderation of recovery of need satisfaction and mood (measured with reflective questions<sup>5</sup>). These were placed after the behavioral intentions, pop culture engagement, and pop culture questions as that gave about 3-5 minutes following the reflexive needs for participants to recover. Following those scales, participants filled out the first seven

questions from Appendix H to assess feelings of failure, incompetence, and sociability, although these were worded to be related to the task rather than the quiz (please see Table 3 for correlations among dependent variables and Cronbach's alphas for aggregate dependent variables). They were also asked manipulation check questions for the feedback manipulation. They were asked "What type of feedback did you receive on your reaction time performance?" with response options of "Positive Feedback" and "Neutral Feedback." They were also asked "What did the feedback you received on your reaction time performance say?" with response options of "Great reaction time!" or "Reaction time registered." They were then thanked, debriefed, and awarded credit for their participation.

## Results

### Manipulation Checks

**Familiarity manipulation check.** We successfully manipulated familiarity. There was a significant effect of familiarity condition on recognition of the celebrities,  $F(1, 240) = 151.06, p < .001, \eta_p^2 = .39$ . Participants in the unfamiliar conditions reported significantly less recognition of the celebrities ( $M = 3.11, SD = 1.65$ ) than participants in the familiar conditions ( $M = 5.61, SD = 1.52$ ). There was no evidence to support a main effect of feedback condition or a significant interaction between the familiarity and feedback conditions on recognition of the celebrities,  $ps > .89$ .

**Feedback manipulation check.** We successfully manipulated the valence of the feedback. Looking at the specific manipulation check question that asked participants the exact feedback they received, there is a significant difference between feedback condition on response,  $\chi^2(N = 240) = 195.13, p < .001$ . Ninety-eight percent

of participants in the positive feedback conditions correctly reported that they received the feedback “Great reaction time!” In the neutral conditions, 91% of participants correctly reported that they received the feedback “Reaction time registered.”

### **Feeling Out of the Loop**

There was a significant effect of familiarity condition on feeling out of the loop,  $F(1, 240) = 11.22, p = .001, \eta_p^2 = .05$  (please see Table 4 for relationships with all dependent variables). Participants in the unfamiliar conditions ( $M = 2.55, SD = 1.77$ ) reported feeling significantly more out of the loop than participants in the familiar conditions ( $M = 1.87, SD = 1.35$ ), supporting *Hypothesis 1*. There was no evidence that feedback condition or an interaction between familiarity and feedback conditions impacted feeling out of the loop,  $ps > .58$ .

### **Reflexive Need Satisfaction Levels and Mood**

There was a significant effect of familiarity condition on need satisfaction,  $F(1, 240) = 4.60, p = .033, \eta_p^2 = .02$ . Supporting *Hypothesis 2*, participants in the unfamiliar conditions reported feeling significantly less need satisfaction ( $M = 4.82, SD = .80$ ) than participants in the familiar conditions ( $M = 5.03, SD = .72$ ). There was also an unanticipated main effect of feedback condition on need satisfaction,  $F(1, 240) = 5.34, p = .022, \eta_p^2 = .02$ , such that participants in the neutral feedback conditions ( $M = 4.81, SD = .74$ ) reported feeling significantly less need satisfaction than participants in the positive feedback conditions ( $M = 5.03, SD = .77$ ). There was no evidence that an interaction between the familiarity and feedback conditions impacted need satisfaction,  $p = .337$ .



There was no significant effect of familiarity condition on mood,  $F(1, 240) = .13, p = .719, \eta_p^2 = .00$ . Thus, there was no evidence to support *Hypothesis 3*. However, there was a marginal main effect of feedback condition on mood,  $F(1, 240) = 3.10, p = .079, \eta_p^2 = .01$ . Participants in the neutral feedback conditions reported a marginally more negative mood ( $M = 5.32, SD = .75$ ) than participants in the positive feedback conditions ( $M = 5.49, SD = .81$ ). There was no evidence that an interaction between the familiarity and feedback conditions influenced mood,  $p = .490$ .

### **Failure**

Supporting *Hypothesis 4*, there was a significant main effect of feedback condition on failure,  $F(1, 239) = 12.25, p = .001, \eta_p^2 = .05$ . Participants in the neutral feedback conditions reported more feelings of failure ( $M = 2.76, SD = 1.32$ ) than participants in the positive feedback conditions ( $M = 2.21, SD = 1.23$ ). There was also a main effect of familiarity condition on failure,  $F(1, 239) = 18.90, p = .001, \eta_p^2 = .05$ . Participants in the unfamiliar conditions reported more feelings of failure ( $M = 2.75, SD = 1.37$ ) than participants in the familiar conditions ( $M = 2.20, SD = 1.17$ ). Contrary to predictions, there was no evidence that an interaction between the familiarity and feedback conditions impacted failure,  $F(1, 239) = .62, p = .615, \eta_p^2 = .00$  (see Figure 3), thus there was no evidence to support *Hypotheses 5a* and *5b*.

### **Self-Rated Pop Culture Importance**

In order to examine whether self-rated pop culture importance affected need satisfaction or mood we conducted regression analyses using Hayes and Matthes (2009) MODPROBE add-in for SPSS. These regressions used familiarity condition (unfamiliar coded as 0 and familiar coded as 1), the centered continuous measure of

self-rated importance, and the interaction between the familiarity variable and self-rated importance as predictors, with need satisfaction and mood as the dependent variables.

For need satisfaction, the effect of familiarity remained significant,  $p = .039$ , suggesting that the effect of familiarity condition on need satisfaction did not change when importance was accounted for. There was no evidence that self-rated importance was related to need satisfaction,  $p = .265$ . There was also no evidence that self-rated pop culture importance and familiarity interacted to influence need satisfaction,  $p = .785$ , suggesting that importance of pop culture to participants did not influence their need satisfaction differently by condition.

For mood, there was no evidence that familiarity condition, self-rated pop culture importance, or the interaction between the two influenced mood,  $ps > .72$ . Thus, across both need satisfaction and mood, there was no evidence that self-rated importance impacted the effect of familiarity, suggesting that people feel bad when they don't recognize pop culture stimuli, regardless of how important pop culture is to them.

### **Desired Internet Behavior**

There was a marginally significant main effect of familiarity on wanting to look up celebrities they did not know on the internet,  $F(1, 236) = 2.97$ ,  $p = .086$ ,  $\eta_p^2 = .01$ . Participants in the unfamiliar conditions ( $M = 2.85$ ,  $SD = 1.76$ ) reported wanting to look up celebrities on the internet more than participants in the familiar conditions ( $M = 2.47$ ,  $SD = 1.66$ ). There was no evidence that feedback condition or an interaction

between feedback and familiarity conditions was related to desired internet behavior,  $ps > .41$ .

### **Feeling Incompetent and Sociable**

Participants in the unfamiliar conditions felt more incompetent ( $M = 2.48$ ,  $SD = 1.53$ ) than participants in the familiar conditions ( $M = 1.98$ ,  $SD = 1.46$ ),  $F(1, 237) = 6.60$ ,  $p = .011$ ,  $\eta_p^2 = .03$ . There was no evidence that feedback condition or an interaction between feedback and familiarity conditions was related to feeling incompetent,  $ps > .57$ .

Participants in the unfamiliar conditions felt less sociable ( $M = 3.31$ ,  $SD = 1.63$ ) than participants in the familiar conditions ( $M = 3.87$ ,  $SD = 1.60$ ),  $F(1, 236) = 7.06$ ,  $p = .008$ ,  $\eta_p^2 = .03$ . There was no evidence that feedback condition or an interaction between feedback and familiarity conditions was related to feeling sociable,  $ps > .74$ .

### **Anomie and Life Disengagement**

There was no evidence that either familiarity or feedback influenced anomie or life disengagement,  $ps > .19$ . There was a significant interaction between familiarity and feedback on anomie,  $F(1, 240) = 4.80$ ,  $p = .029$ ,  $\eta_p^2 = .02$ . For those in the familiar conditions, participants given neutral feedback reported higher anomie ( $M = 2.79$ ,  $SD = .79$ ) than participants in the positive feedback condition ( $M = 2.52$ ,  $SD = .73$ ),  $t(120) = -1.97$ ,  $p = .051$ , although there was no evidence for a difference between the unfamiliar conditions,  $p = .275$ . There was a marginally significant interaction between familiarity and feedback on life disengagement,  $F(1, 240) = 3.06$ ,  $p = .082$ ,  $\eta_p^2 = .01$ . For participants in the familiar conditions, participants given neutral feedback reported higher life disengagement ( $M = 2.14$ ,  $SD = .76$ ) than participants given positive

feedback ( $M = 1.90$ ,  $SD = .61$ ),  $t(120) = -1.98$ ,  $p = .050$ , although there was no evidence for a difference between the unfamiliar conditions,  $p = .723$ .

### **Mediation**

We utilized the same mediation procedure as in Study 1, except we only ran one mediation each time as there were only two conditions.

**Need satisfaction level.** Bootstrapping results showed that feeling out of the loop mediated the effect of familiarity on need satisfaction level with a point estimate of .16 (BCA CI of .07 to .27). However, feeling as if they failed also mediated the effect of familiarity on need satisfaction level with a point estimate of .04 (BCA CI of .005 to .10), although there was no evidence that feeling incompetent mediated the relationship between familiarity and need satisfaction with a point estimate of -.02 (BCA CI of -.07 to .02) (see Figure 4). In order to explore whether importance mediated the relationship between familiarity conditions and need satisfaction, we also ran another multiple mediator model adding self-rated pop culture importance as a mediator. When we did this, there was no evidence that importance mediated the relationship with a point estimate of .01 (BCA CI of -.01 to .04), and, again, feeling out of the loop mediated the relationship with a point estimate of .16 (BCA CI of .07 to .26) and feeling as if they failed also mediated the relationship with a point estimate of .04 (BCA CI of .01 to .10).

**Mood.** Bootstrapping results showed that feeling out of the loop mediated the effect of familiarity on mood with a point estimate of .17 (BCA CI of .08 to .29), as did feeling as if they failed, with a point estimate of .05 (BCA CI of .01 to .11). However, there was no evidence that feeling incompetent mediated the relationship between

familiarity and mood with a point estimate of  $-.02$  (BCA CI of  $-.07$  to  $.02$ ). These mediations do not support *Hypothesis 6* that only feeling out of the loop would mediate the relationship between familiarity and need satisfaction and mood. In order to explore whether importance mediated the relationship between familiarity conditions and mood, we also ran another multiple mediator model adding self-rated pop culture importance as a mediator. When we did this, there was no evidence that importance mediated the relationship with a point estimate of  $.001$  (BCA CI of  $-.01$  to  $.02$ ), and, again, feeling out of the loop mediated the relationship with a point estimate of  $.17$  (BCA CI of  $.08$  to  $.29$ ) as did feeling as if they failed with a point estimate of  $.05$  (BCA CI of  $.01$  to  $.11$ ).

### **Discussion**

Study 2 sought to eliminate the feelings of failure associated with not recognizing pop culture elements. Our results showed, however, that this feeling was still present. Participants in the unfamiliar conditions reported feeling like they failed more than participants in the familiar conditions. In addition, there was no interaction with the feedback condition, such that participants in the unfamiliar condition felt as if they failed equally when they received positive or neutral feedback on their reaction time. This suggests that feelings of failure may co-occur with feeling out of the loop, and it may not be possible to disentangle those feelings of failure from being out of the loop.

Most of the findings from this study are consistent with previous studies. Participants in the unfamiliar condition reported feeling more out of the loop and lower need satisfaction than participants in the familiar condition. There was no differential

effect based on feedback either. Again, there was no interaction between familiarity and importance, suggesting that even for people who rate pop culture as less important, they still feel bad when they are unfamiliar with pop culture stimuli. These findings provide further evidence that it is difficult to moderate the effects of being out of the loop on pop culture. Additionally, we again find that participants in the unfamiliar conditions wanted to look up celebrities they didn't know on the internet – suggesting a behavior intended to get people back in the loop. Participants in the unfamiliar conditions also reported feeling less competent and less sociable than participants in the familiar conditions. We found in Study 1 that participants in the unfamiliar condition reported feeling less incompetent than participants in the familiar condition, however, the findings on feeling sociable were new. Feeling less sociable in unfamiliar conditions could be a warning sign that alerts individuals of potential danger to their social standing, in so much as being out of the loop on pop culture may impact your social standing.

A few other findings were unique to this study. One was that in addition to feeling out of the loop, failure also mediated the relationship between familiarity and need satisfaction and mood. It could be that because the familiarity manipulation was much more subtle in this study (the only words that suggested that others knew the celebrities was that they were “popular celebrities”), feeling out of the loop was less impacted. In fact, the effect size of feeling out of the loop based on familiarity condition was lower in this study ( $\eta_p^2 = .05$ ) than in any other study ( $\eta_p^2$ s > .15). This could have allowed feeling of failure to account for more of the effect between familiarity and need satisfaction and mood than it normally does. There were also two

similar findings on anomie and life disengagement where participants in the familiar neutral feedback condition reported higher anomie and life disengagement than participants in the familiar positive feedback condition. It is surprising that the differences appear within the familiar condition rather than the unfamiliar condition. This may add to the idea that people in exclusion (or here, unfamiliar) conditions feel bad regardless of other factors.

### STUDY 3

After developing a new method, demonstrating the direction of the effect, and attempting to eliminate the failure effect and still showing negative psychological consequences, the next three studies attempted to find boundary conditions of the effect of being out of the loop on pop culture. First, we looked at whether “who” people are out of the loop from matters. In this case, we looked at ingroups and outgroups.

Social identity theory may suggest that people wouldn't mind being out of the loop from their outgroup. According to social identity theory (Tajfel & Turner, 1986), individuals' identities are derived from their group membership. As part of this process, the ingroup accentuation principle suggests that we minimize perceived within-group differences while maximizing perceived between-group differences. This suggests that we would anticipate differences with an outgroup, but not an ingroup. In addition, optimal distinctiveness theory would suggest that people want to satisfy their need for inclusion through their ingroup but satisfy their need to be distinctive through their outgroup (Brewer, 1991). Thus, it is important to differentiate from the outgroup and be similar to the ingroup. The ingroup accentuation principle and optimal distinctiveness theory would both suggest that if people are out of the loop from the outgroup, they shouldn't feel as bad as when they are out of the loop from the ingroup.



We manipulated whether participants were exposed to familiar or unfamiliar urban slang words that their ingroup was, and outgroup was not, familiar with, or that their outgroup was, and their ingroup was not, familiar with.

Again, we predicted a replication of previous research with main effects of familiarity condition such that the participants in the unfamiliar conditions would report feeling more out of the loop, lower need satisfaction, and less positive mood than participants in the familiar conditions (*Hypotheses 1-3*). However, we also predicted a qualifying interaction with ingroup condition, such that participants in the ingroup/unfamiliar condition would feel more out of the loop, lower need satisfaction, and less positive mood than participants in the outgroup/unfamiliar condition (*Hypothesis 4a*). We don't anticipate a difference in the familiar condition (*Hypothesis 4b*). We would predict once again that feeling as if they failed or feeling incompetent would not mediate the familiarity-need satisfaction or familiarity-mood relationships, but feeling out of the loop would (*Hypothesis 5*).

## **Method**

### **Participants**

We recruited 165<sup>6</sup> Purdue students (62 males;  $M_{\text{age}} = 19$ ; 69.4% Caucasian) from Purdue University's Introductory Psychology participant pool.

### **Design**

The study used a 2 (group: ingroup vs. outgroup) x 2 (familiarity: familiar vs. unfamiliar) between-subjects design.

## Procedure

Participants came to the lab for a study on “Current Events.” They were randomly assigned to one of our four conditions. First, they were given an informed consent sheet and signed it to agree to participate. Then they were asked the same initial questions from Study 2. They were then told:

“For the following task, you will be shown slang terms. These are terms that a majority of *Purdue University* (*Ohio State University*<sup>7</sup>) students could recognize but a majority of *Ohio State University* (*Purdue University*) students could not recognize. You’ll be asked to indicate whether you know the term’s meaning or not.”

Participants were then shown sixteen slang terms. They were shown fourteen words that matched their condition (familiar or unfamiliar) and two from the opposite condition, to decrease suspicion. The familiar words were terms used frequently by students and the media (e.g., photo bomb), whereas the unfamiliar words were made up (e.g., photo lop). As an additional precaution, the unfamiliar terms did not appear on [urbandictionary.com](http://urbandictionary.com), a popular site for slang term definitions. Participants were asked to choose a response between “yes,” and “no,” as to whether they recognized the slang term’s definition.

The remainder of the study was the same as Study 2, with participants answering the same questions (please see Table 5 for correlations among dependent variables and Cronbach’s alphas for aggregate dependent variables). They also answered a familiarity manipulation check similar to that of Study 2 and were also

asked a manipulation check item for the ingroup/outgroup manipulation. We asked them to choose what they were told at the beginning of the study: a.) “These are terms that a majority of *Purdue University* students could recognize but a majority of *Ohio State University* students could not recognize,” or b.) “These are terms that a majority of *Ohio State University* students could recognize but a majority of *Purdue University* students could not recognize.” They were then thanked, debriefed, and awarded credit for their participation.

## Results

### Manipulation Checks

**Familiarity manipulation check.** We successfully manipulated familiarity. There was a significant effect of familiarity condition on recognition of the slang terms,  $F(1, 161) = 204.92, p < .001, \eta_p^2 = .56$ . Participants in the unfamiliar conditions reported significantly less recognition of the slang terms ( $M = 1.54, SD = .93$ ) than participants in the familiar conditions ( $M = 5.00, SD = 1.99$ ). There was no evidence that group condition or an interaction between the familiarity and group conditions influenced recognition of the slang terms,  $ps > .40$ .

**Group manipulation check.** We successfully manipulated the ingroup/outgroup difference. Looking at the specific manipulation check question that asked participants the exact feedback they received, there is a significant difference between feedback condition on response,  $\chi^2(N = 164) = 140.97, p < .001$ . Ninety-eight percent of participants in the ingroup conditions correctly reported that they received instructions that Purdue students could recognize the slang terms and Ohio State students could not. In the outgroup conditions, 95% of participants correctly reported

that they received instructions that Ohio State students could recognize the slang terms and Purdue students could not.

### **Feeling Out of the Loop**

There was a significant effect of familiarity condition on feeling out of the loop,  $F(1, 161) = 29.96, p < .001, \eta_p^2 = .16$  (please see Table 6 for relationships with all dependent variables). Participants in the unfamiliar conditions ( $M = 4.19, SD = 2.03$ ) reported feeling significantly more out of the loop than participants in the familiar conditions ( $M = 2.63, SD = 1.58$ ), supporting *Hypothesis 1*. There was no evidence that group condition or an interaction between familiarity and group conditions was related to feeling out of the loop,  $ps > .60$ . Thus, there was no evidence to support *Hypothesis 4a*, although with no difference in the familiar conditions, *Hypothesis 4b* was supported.

### **Reflexive Need Satisfaction Levels and Mood**

There was a significant effect of familiarity condition on need satisfaction,  $F(1, 161) = 12.65, p < .001, \eta_p^2 = .07$ . Supporting *Hypothesis 2*, participants in the unfamiliar conditions reported feeling significantly less need satisfaction ( $M = 4.18, SD = .95$ ) than participants in the familiar conditions ( $M = 4.68, SD = .82$ ). There was no evidence that group condition or an interaction between the familiarity and group conditions influenced need satisfaction (see Figure 5),  $ps > .70$ . Thus, there was no evidence to support *Hypothesis 4a*, although with no difference in the familiar conditions, *Hypothesis 4b* was supported.

There was a significant effect of familiarity condition on mood,  $F(1, 161) = 10.41, p = .002, \eta_p^2 = .06$ . Thus, *Hypothesis 3* was supported. Participants in the

unfamiliar conditions reported feeling a more negative mood ( $M = 4.90$ ,  $SD = .84$ ) than participants in the familiar conditions ( $M = 5.31$ ,  $SD = .79$ ). However, there was also an unanticipated marginal main effect of group condition on mood,  $F(1, 161) = 2.79$ ,  $p = .097$ ,  $\eta_p^2 = .02$ . Participants in the outgroup conditions reported marginally significantly more negative mood ( $M = 5.21$ ,  $SD = .86$ ) than participants in the ingroup conditions ( $M = 5.00$ ,  $SD = .81$ ). There was no evidence that an interaction between the familiarity and group conditions was related to mood,  $p = .395$ . Thus, there was no evidence to support *Hypothesis 4a*, although with no difference in the familiar conditions, *Hypothesis 4b* was supported.

### **Failure**

There was a significant main effect of familiarity condition on failure,  $F(1, 161) = 88.96$ ,  $p < .001$ ,  $\eta_p^2 = .36$ . Participants in the unfamiliar conditions reported more feelings of failure ( $M = 5.29$ ,  $SD = 1.87$ ) than participants in the familiar conditions ( $M = 2.54$ ,  $SD = 1.87$ ). There was no evidence that group condition, nor was there evidence that an interaction between the familiarity and group conditions, influenced failure,  $ps > .27$ .

### **Self-Rated Pop Culture Importance**

In order to examine whether self-rated pop culture importance affected need satisfaction or mood we utilized the same procedure as in Study 2.

For need satisfaction, the effect of familiarity remained significant,  $p = .001$ , suggesting that the effect of familiarity condition on need satisfaction did not change when importance was accounted for. There was no evidence that self-rated importance was related to need satisfaction,  $p = .523$ . There was also no evidence that an

interaction between familiarity and self-rated importance influenced need satisfaction,  $p = .615$ , suggesting that importance of pop culture to participants did not influence their need satisfaction differently by condition.

For mood, the effect of familiarity remained significant,  $p = .002$ , suggesting that the effect of familiarity condition on mood did not change when importance was accounted for. There was no evidence that self-rated importance was related to mood,  $p = .572$ . There was also no evidence that an interaction between familiarity and self-rated importance was related to mood,  $p = .778$ , suggesting that importance of pop culture to participants did not influence participants' mood differently by condition.

### **Desired Internet Behavior**

There was a significant main effect of familiarity condition on whether participants wanted to look up slang terms they did not know,  $F(1, 160) = 13.84$ ,  $p < .001$ ,  $\eta_p^2 = .08$ . Participants in the unfamiliar conditions wanted to look up terms they did not know more ( $M = 4.60$ ,  $SD = 2.10$ ) than participants in the familiar conditions ( $M = 3.37$ ,  $SD = 2.11$ ). There was no evidence that group condition or an interaction between the familiarity and group conditions influenced desired internet behavior,  $ps > .51$ .

### **Feeling Incompetent and Sociable**

Participants in the unfamiliar conditions felt more incompetent ( $M = 2.66$ ,  $SD = 1.75$ ) than participants in the familiar conditions ( $M = 2.00$ ,  $SD = 1.55$ ),  $F(1, 160) = 6.57$ ,  $p = .011$ ,  $\eta_p^2 = .04$ . There was no evidence that group condition, nor was there evidence that an interaction between the familiarity and group conditions, impacted feelings of incompetence,  $ps > .41$ .

Participants in the unfamiliar conditions felt less sociable ( $M = 2.41$ ,  $SD = 1.30$ ) than participants in the familiar conditions ( $M = 3.62$ ,  $SD = 1.77$ ),  $F(1, 160) = 24.96$ ,  $p < .001$ ,  $\eta_p^2 = .14$ . There was no evidence that group condition or an interaction between the familiarity and group conditions influenced feeling sociable,  $ps > .20$ .

### **Pop Culture Engagement**

There was an unanticipated main effect of group condition on pop culture engagement,  $F(1, 161) = 4.49$ ,  $p = .036$ ,  $\eta_p^2 = .03$ . Participants in the outgroup conditions reported more pop culture engagement ( $M = 3.23$ ,  $SD = .61$ ) than participants in the ingroup conditions ( $M = 3.03$ ,  $SD = .58$ ).

### **Anomie**

There was a marginally significant interaction between familiarity and group condition on anomie,  $F(1, 161) = 3.72$ ,  $p = .056$ ,  $\eta_p^2 = .02$ . However, the simple effects do not follow a predicted pattern. Participants in the ingroup familiar condition reported more anomie ( $M = 3.05$ ,  $SD = .57$ ) than participants in the ingroup unfamiliar condition ( $M = 2.68$ ,  $SD = .72$ ),  $t(80) = 2.57$ ,  $p = .012$ .

### **Mediation**

We utilized the same mediation procedure as in Study 2.

**Need satisfaction level.** Bootstrapping results showed that feeling out of the loop mediated the effect of familiarity on need satisfaction level with a point estimate of .42 (BCA CI of .25 to .63). However, there was no evidence that feeling as if they failed mediated the effect of familiarity on need satisfaction level with a point estimate of -.03 (BCA CI of -.22 to .17), nor was there evidence that feeling incompetent mediated the relationship with a point estimate of .04 (BCA CI of -.004 to .14) (see

Figure 6). In order to explore whether importance mediated the relationship between familiarity conditions and need satisfaction, we also ran another multiple mediator model adding self-rated pop culture importance as a mediator. When we did this, there was no evidence that importance mediated the relationship with a point estimate of .001 (BCA CI of -.02 to .04), and, again, only feeling out of the loop mediated the relationship with a point estimate of .42 (BCA CI of .25 to .63).

**Mood.** Bootstrapping results showed that feeling out of the loop mediated the effect of familiarity on mood with a point estimate of .27 (BCA CI of .14 to .43), as did feeling incompetent, with a point estimate of .06 (BCA CI of .01 to .16). However, there was no evidence that feeling as if they failed mediated the effect of familiarity on mood with a point estimate of -.02 (BCA CI of -.21 to .18). The mediation on need satisfaction supports *Hypothesis 5*, however, the mediation on mood does not provide evidence to support *Hypothesis 5*. Thus, we found partial support for *Hypothesis 5*. In order to explore whether importance mediated the relationship between familiarity conditions and need satisfaction, we also ran another multiple mediator model adding self-rated pop culture importance as a mediator. When we did this, there was no evidence that importance mediated the relationship with a point estimate of .02 (BCA CI of -.02 to .09), and, again, feeling out of the loop mediated the relationship with a point estimate of .26 (BCA CI of .14 to .43) and feeling incompetent also mediated the relationship with a point estimate of .05 (BCA CI of .004 to .15).

### **Discussion**

Study 3 sought to find a situation where people may not feel as badly about being out of the loop on pop culture – when they are out of the loop from their



outgroup. However, the results showed that whether participants were out of the loop on pop culture from their ingroup or outgroup, they felt just as bad. It is possible that Ohio State was not a sufficient outgroup – maybe students feel a need to be in the loop on pop culture with students at a school nearby. As Ohio State University is in the same regional area, in the same athletic conference, and students at Purdue may know people who go there, they may feel just as bad when out of the loop on pop culture from these students. In the future, it might be beneficial to attempt to manipulate a different outgroup – such as students at a school in California or the South.

Furthermore, research on ostracism suggests that people still feel negative when excluded by outgroup members (Gonsolkorale & Williams, 2007). It may be the case that being out of the loop on pop culture operates similarly, and thus, people would still feel negative when they are out of the loop from their outgroup. As they stand, these results suggest further that it is difficult to moderate the effect of being out of the loop on pop culture and people seem to feel bad regardless of *who* they are out of the loop from.

Many other results replicated those from previous studies. Participants in the unfamiliar conditions reported feeling more out of the loop, lower need satisfaction, more negative mood, more feelings of failure, and feeling more incompetent and less sociable than participants in the familiar conditions. Additionally, self-rated pop culture importance again did not change how people felt in the unfamiliar conditions – suggesting that even for people who view pop culture as less important, they still feel bad when they are unfamiliar with pop culture stimuli. Again, participants in the unfamiliar conditions reported wanting to look up terms they did not

know – suggesting behavior intended to get back in the loop. Although the mediation looking at the need satisfaction outcome was similar to previous studies, the mediation looking at the mood outcome showed that feeling incompetent mediated the relationship in addition to feeling out of the loop. It could be possible that feeling incompetent leads to a more negative mood and thus is influencing the process of how familiarity impacts mood more. However, as mood effects are often inconsistent, it may be difficult to interpret what is going on.

## STUDY 4

After assessing whether or not *who* people are out of the loop from matters, we explored whether *what* people are out of the loop on matters. We did this by testing a personally relevant type of popular culture (American celebrities) versus a less personally relevant type (Asian celebrities), looking at both the American-born non-Asian and Asian-born Purdue student populations. We predicted that American-born non-Asian participants would not care about being out of the loop on Asian celebrities. However, Asian-born participants may care about being out of the loop on American celebrities, due to being assimilated into American culture.

We again predicted a replication of the previous research showing a main effect of familiarity condition such that participants in the unfamiliar conditions would report feeling more out of the loop, less need satisfaction, and less positive mood than participants in the familiar conditions (*Hypotheses 1-3*). However, we also predicted a qualifying interaction such that American-born non-Asian students would report feeling higher need satisfaction, and more positive mood when exposed to unfamiliar Asian celebrities versus unfamiliar American celebrities (*Hypothesis 4a*). However, we anticipated that Asian-born students would still experience the same levels of need satisfaction, and mood when exposed to unfamiliar American celebrities as unfamiliar Asian celebrities (*Hypothesis 4b*). We also anticipated that feeling as if they failed or

feeling incompetent would not mediate the familiarity-need satisfaction or familiarity-mood relationships, but feeling out of the loop would (*Hypothesis 5*).

## **Method**

### **Participants**

We recruited 276<sup>8</sup> Purdue students (130 males;  $M_{\text{age}} = 19.8$ ) from Purdue University's Introductory Psychology participant pool and through extra credit<sup>9</sup>. Of these participants, 150 (54.3%) were American (136 White, 14 Black), and the other 126 were East Asian (103 Chinese, 21 Korean, and 2 Japanese) participants who were born in East Asia.

### **Design**

The study was a 2 (nationality of participant: American-born non-Asian vs. Asian-born) x 2 (familiarity: familiar vs. unfamiliar) x 2 (nationality of celebrity: American vs. Asian) between-subjects design.

### **Procedure**

Asian-born and American-born non-Asian participants were invited to participate based on pre-screen responses to their ethnicity (East Asian versus White/Black American) or based on their ethnicity for extra credit. They then participated in an online study<sup>10</sup> on "Current Events." Participants first read an informed consent sheet and had to click "I agree" to be directed to the study. First they were asked the same initial questions from Study 2. They were then randomly assigned to one of our four conditions and told:

“For the following task, you will be shown pictures of American (Asian) celebrities. A majority of our pre-test subjects could recognize these celebrities. You’ll be asked to indicate whether you recognize the celebrity or not.”

Participants were then shown images of 10 American or Asian celebrities. The familiar and unfamiliar American celebrities were similar to the celebrities from Study 2 (e.g., Brad Pitt and Jennifer Aniston or Emile Hirsch and Eva Green, respectively). However, the familiar and unfamiliar Asian celebrities were new. Familiar Asian celebrities were popular to both American and Asian participants (e.g., Jackie Chan and Lucy Liu), however, the unfamiliar Asian celebrities were unfamiliar to both American and Asian participants (e.g., Guolin Zheng and Jiaxin Gong).<sup>11</sup> As they saw the images they chose a response option of “yes” or “no” as to whether they recognized them or not.

After rating their recognition, the rest of the study was the same as Study 3 (please see Table 7 for correlations among dependent variables and Cronbach’s alphas for aggregate dependent variables). However, they were also asked a manipulation check item for the nationality manipulation. We asked them what type of celebrities they rated: a.) Asian celebrities or b.) White/Black celebrities. In addition, we asked participants some questions regarding how important Asian and American movie stars were to them. These questions were “How important are Asian movie stars to you?,” “How important are American movie stars to you?,” “It is important to me to recognize Asian movie stars,” and “It is important to me to recognize American movie stars.”

Participants responded to these questions on 7-point scales with 1 being “not at all” and 7 being “extremely.” Finally, participants responded to two feeling thermometer questions to assess prejudice toward American and Asian people. These questions were “What is your feeling toward American [Asian] people? (0 represents very cold and 100 represents very warm).” Participants moved a bar anywhere between 0 and 100 to respond. Participants were then thanked, debriefed, and awarded credit for their participation.

## Results

### Manipulation Checks

**Familiarity manipulation check.** We successfully manipulated familiarity. There was a significant effect of familiarity condition on recognition of the celebrities,  $F(1, 267) = 223.88, p < .001, \eta_p^2 = .46$ . Participants in the unfamiliar conditions reported significantly less recognition of the celebrities ( $M = 2.07, SD = 1.45$ ) than participants in the familiar conditions ( $M = 4.75, SD = 1.94$ ). There was also an unanticipated main effect of participant ethnicity,  $F(1, 267) = 23.92, p < .001, \eta_p^2 = .08$ , such that Asian-born participants reported significantly less recognition of the celebrities ( $M = 2.91, SD = 1.88$ ) than American-born non-Asian participants ( $M = 3.76, SD = 2.35$ ). Another unanticipated main effect of celebrity ethnicity occurred,  $F(1, 267) = 23.48, p < .001, \eta_p^2 = .08$ . Participants in the Asian celebrity conditions reported significantly less recognition of the celebrities ( $M = 2.92, SD = 1.97$ ) than participants in the American celebrity conditions ( $M = 3.92, SD = 2.26$ ). There was also an unanticipated two-way interaction between participant ethnicity and familiarity,  $F(1, 235) = 14.35, p < .001, \eta_p^2 = .05$ . Asian-born participants in the familiar conditions

reported significantly less recognition of the celebrities ( $M = 3.88$ ,  $SD = 1.82$ ) than American-born non-Asian participants in the familiar conditions ( $M = 5.48$ ,  $SD = 1.72$ ),  $t(139) = 5.37$ ,  $p < .001$ . However, there was no evidence to support a difference in the unfamiliar conditions,  $p = .386$ . Finally, there was also an unanticipated two-way interaction between participant ethnicity and celebrity ethnicity,  $F(1, 235) = 6.04$ ,  $p = .015$ ,  $\eta_p^2 = .02$ . American-born non-Asian participants in the Asian celebrity conditions reported significantly less recognition of the celebrities ( $M = 3.08$ ,  $SD = 2.20$ ) than American-born non-Asian participants in the American celebrity conditions ( $M = 4.42$ ,  $SD = 2.32$ ),  $t(148) = 3.63$ ,  $p < .001$ . However, there was no evidence to support a difference for the Asian-born participants,  $p = .199$ . There was no evidence for any other effects on recognition,  $ps > .49$ .

**Celebrity ethnicity manipulation check.** We successfully manipulated the celebrity ethnicity difference. There is a significant difference between celebrity ethnicity condition on response,  $\chi^2(N = 276) = 217.41$ ,  $p < .001$ . Ninety percent of participants in the American ethnicity conditions correctly reported that they rated their recognition of White/Black celebrities. In the Asian celebrity conditions, 98.5% of participants correctly reported that they rated their recognition of Asian celebrities.

**Importance of Asian and American celebrities.** We looked at how important Asian and American celebrities and recognizing Asian and American celebrities was to participants. American-born non-Asian participants rated American celebrities as more important to them ( $M = 3.54$ ,  $SD = 1.39$ ) than Asian celebrities ( $M = 2.31$ ,  $SD = 1.31$ ),  $t(149) = -10.21$ ,  $p < .001$ . However, there was no evidence to support a difference in rated importance of American and Asian celebrities to Asian-born participants,  $p =$

.133. Additionally, American-born non-Asian participants reported that recognizing American celebrities was more important to them ( $M = 2.97, SD = 1.68$ ) than recognizing Asian celebrities ( $M = 1.95, SD = 1.26$ ),  $t(147) = -8.28, p < .001$ . However, there was no evidence to support a difference in rated importance of recognizing American and Asian celebrities to Asian-born participants,  $p = .271$ .

### **Feeling Out of the Loop**

There was a significant effect of familiarity condition on feeling out of the loop,  $F(1, 267) = 18.35, p < .001, \eta_p^2 = .06$  (please see Table 8 for relationships with all dependent variables). Participants in the unfamiliar conditions reported feeling more out of the loop ( $M = 3.21, SD = 1.88$ ) than participants in the familiar conditions ( $M = 2.31, SD = 1.47$ ). Thus, *Hypothesis 1* was supported. There was also an unanticipated main effect of celebrity ethnicity,  $F(1, 267) = 6.32, p = .013, \eta_p^2 = .02$ . Participants in the Asian celebrity conditions reported feeling more out of the loop ( $M = 3.06, SD = 1.80$ ) than participants in the American celebrity conditions ( $M = 2.46, SD = 1.63$ ). There was also an unanticipated two-way interaction between participant ethnicity and familiarity,  $F(1, 267) = 6.75, p = .010, \eta_p^2 = .03$ . Asian-born participants in the familiar conditions reported feeling more out of the loop ( $M = 2.69, SD = 1.50$ ) than American-born non-Asian participants in the familiar conditions ( $M = 1.96, SD = 1.32$ ),  $t(138) = -3.07, p = .003$ . However, there was no evidence to support a difference in the unfamiliar conditions,  $p = .431$ . There was also an unanticipated two-way interaction between participant ethnicity and celebrity ethnicity,  $F(1, 267) = 6.02, p = .015, \eta_p^2 = .02$ . American-born non-Asian participants in the Asian celebrity conditions reported feeling more out of the loop ( $M = 3.09, SD = 1.94$ ) than American-born non-Asian



participants in the American celebrity conditions ( $M = 2.14$ ,  $SD = 1.61$ ),  $t(148) = -3.27$ ,  $p = .001$ . However, there was no evidence to support a difference for the Asian-born participants,  $p = .960$ .

A three-way interaction between participant ethnicity, familiarity, and celebrity ethnicity also occurred,  $F(1, 267) = 5.56$ ,  $p = .019$ ,  $\eta_p^2 = .02$ . American-born non-Asian participants in the unfamiliar Asian celebrity condition reported feeling more out of the loop ( $M = 4.08$ ,  $SD = 1.95$ ) than American-born non-Asian participants in the unfamiliar American celebrity condition ( $M = 2.47$ ,  $SD = 1.84$ ),  $t(73) = -3.67$ ,  $p < .001$ . However, there was no evidence to support a difference between the familiar conditions,  $p = .341$ . In addition, there was no evidence that the familiar and unfamiliar conditions differed for Asian-born participants,  $ps > .49$ . There was no evidence for any other effects on feeling out of the loop,  $ps > .22$ .

### **Reflexive Need Satisfaction Levels and Mood**

There was a significant effect of familiarity condition on need satisfaction,  $F(1, 268) = 13.71$ ,  $p = .001$ ,  $\eta_p^2 = .05$ . Participants in the unfamiliar conditions reported lower need satisfaction ( $M = 4.33$ ,  $SD = .85$ ) than participants in the familiar conditions ( $M = 4.75$ ,  $SD = .81$ ). Thus, *Hypothesis 2* was supported. There was also an unanticipated main effect of celebrity ethnicity,  $F(1, 268) = 5.39$ ,  $p = .021$ ,  $\eta_p^2 = .02$ , such that participants in the Asian celebrity conditions reported lower need satisfaction ( $M = 4.43$ ,  $SD = .76$ ) than participants in the American celebrity conditions ( $M = 4.65$ ,  $SD = .94$ ). An unanticipated main effect of participant ethnicity also occurred,  $F(1, 268) = 8.97$ ,  $p = .003$ ,  $\eta_p^2 = .03$ . Asian-born participants reported lower need

satisfaction ( $M = 4.42$ ,  $SD = .88$ ) than American-born non-Asian participants ( $M = 4.71$ ,  $SD = .77$ ).

Supporting *Hypotheses 4a* and *4b*, there was also a three-way interaction between participant ethnicity, familiarity, and celebrity ethnicity,  $F(1, 268) = 4.59$ ,  $p = .033$ ,  $\eta_p^2 = .02$  (see Figure 7). Simple effects analyses showed that American-born non-Asian participants in the unfamiliar Asian celebrity condition reported lower need satisfaction ( $M = 4.23$ ,  $SD = .67$ ) than American-born non-Asian participants in the unfamiliar American celebrity condition ( $M = 4.69$ ,  $SD = .80$ ),  $t(73) = 2.73$ ,  $p = .008$ . However, there was no evidence to support a difference between the familiar conditions,  $p = .725$ . These simple effects do not provide evidence to support *Hypothesis 4a*, as American-born non-Asian participants felt worse when unfamiliar with Asian celebrities than American celebrities. On the other hand, Asian-born participants in the familiar Asian celebrity condition reported lower need satisfaction ( $M = 4.33$ ,  $SD = .69$ ) than Asian participants in the familiar American celebrity condition ( $M = 4.72$ ,  $SD = .89$ ),  $t(64) = 2.00$ ,  $p = .050$ . However, there was no evidence to support a difference between the unfamiliar conditions,  $p = .924$ . As there was no evidence to support a difference between the unfamiliar Asian celebrity and unfamiliar American celebrity conditions for Asian-born participants, *Hypothesis 4b* was supported. There was no evidence to support any other effects on need satisfaction,  $ps > .17$ .

There was a significant effect of familiarity condition on mood,  $F(1, 268) = 4.21$ ,  $p = .041$ ,  $\eta_p^2 = .02$ . Participants in the unfamiliar conditions reported feeling more negative ( $M = 4.99$ ,  $SD = .95$ ) than participants in the familiar conditions ( $M = 5.25$ ,

$SD = .86$ ). There was also an unanticipated main effect of celebrity ethnicity,  $F(1, 268) = 8.14, p = .005, \eta_p^2 = .03$ . Participants in the Asian celebrity conditions reported feeling a more negative mood ( $M = 4.99, SD = .91$ ) than participants in the American celebrity conditions ( $M = 5.26, SD = .90$ ). There was also an unanticipated main effect of participant ethnicity,  $F(1, 268) = 19.82, p < .001, \eta_p^2 = .07$ . Asian-born participants reported feeling a more negative mood ( $M = 4.92, SD = .93$ ) than American-born non-Asian participants ( $M = 5.38, SD = .85$ ). There was no evidence to support any other effects on mood,  $p$ 's  $> .47$ . These findings provide evidence to support *Hypothesis 3*, but not *Hypotheses 4a* and *4b*.

### **Failure**

There was a significant effect of familiarity condition on feelings of failure,  $F(1, 267) = 41.46, p < .001, \eta_p^2 = .15$ . Participants in the unfamiliar conditions reported feeling more failure ( $M = 3.99, SD = 2.12$ ) than participants in the familiar conditions ( $M = 2.38, SD = 1.63$ ). There was also an unanticipated main effect of celebrity ethnicity,  $F(1, 267) = 13.42, p < .001, \eta_p^2 = .05$ . Participants in the Asian celebrity conditions reported feeling as if they failed more ( $M = 3.60, SD = 2.13$ ) than participants in the American celebrity conditions ( $M = 2.78, SD = 1.90$ ). There was also an unanticipated marginal main effect of participant ethnicity. Asian-born participants felt as if they failed at the task more ( $M = 3.35, SD = 1.94$ ) than American-born non-Asian participants ( $M = 2.99, SD = 2.12$ ). Additionally, there was an unanticipated marginal two-way interaction between participant ethnicity and familiarity,  $F(1, 267) = 3.76, p = .054, \eta_p^2 = .02$ . Asian-born participants in the familiar conditions reported feeling more failure ( $M = 2.78, SD = 1.76$ ) than American-born

non-Asian participants in the familiar conditions ( $M = 1.97$ ,  $SD = 1.27$ ),  $t(138) = -3.15$ ,  $p = .002$ . However, there was no evidence to support a difference in the unfamiliar conditions,  $p = .929$ . Finally, there was an unanticipated marginal two-way interaction between participant ethnicity and celebrity ethnicity,  $F(1, 267) = 3.73$ ,  $p = .055$ ,  $\eta_p^2 = .02$ . American-born non-Asian participants in the Asian celebrity conditions reported feeling more failure ( $M = 3.65$ ,  $SD = 2.25$ ) than American-born non-Asian participants in the American celebrity conditions ( $M = 2.34$ ,  $SD = 1.78$ ),  $t(148) = -3.95$ ,  $p < .001$ . However, there was no evidence to support a difference for the Asian-born participants,  $p = .433$ . There was no evidence to support any other effects on failure,  $ps > .12$ .

### **Self-Rated Pop Culture Importance**

In order to examine whether self-rated pop culture importance affected need satisfaction or mood we utilized the same procedure as in Study 2.

For need satisfaction, the effect of familiarity remained significant,  $p < .001$ , suggesting that the effect of familiarity condition on need satisfaction did not change when importance was accounted for. There was no evidence that self-rated importance was related to need satisfaction,  $p = .898$ . There was also no evidence for an interaction between familiarity and self-rated pop culture importance impacting need satisfaction,  $p = .223$ , suggesting that importance of pop culture to participants did not influence their need satisfaction differently by condition.

For mood, the effect of familiarity remained significant,  $p = .010$ , suggesting that the effect of familiarity condition on mood did not change when importance was accounted for. There was no evidence that self-rated importance was related to participants' mood,  $p = .815$ , nor was there evidence that an interaction between

familiarity and self-rated pop culture importance was related to participants' mood,  $p = .485$ , suggesting that importance of pop culture to participants did not influence participants' mood differently by condition.

### **Internet Behavior**

There was only an unanticipated significant main effect of participant ethnicity on whether participants looked up celebrities they did not know,  $F(1, 266)=68.29$ ,  $p<.001$ ,  $\eta_p^2=.21$ . Asian-born participants reported looking up celebrities ( $M=2.50$ ,  $SD=1.57$ ) more than American-born non-Asian participants ( $M=1.29$ ,  $SD=.81$ ). There was no evidence to support any other effects on internet behavior,  $ps>.11$ .

### **Feeling Incompetent and Sociable**

Participants in the unfamiliar conditions felt more incompetent ( $M = 2.41$ ,  $SD = 1.67$ ) than participants in the familiar conditions ( $M = 2.08$ ,  $SD = 1.45$ ),  $F(1, 266) = 5.40$ ,  $p = .021$ ,  $\eta_p^2 = .02$ . There was also a significant main effect of participant ethnicity,  $F(1, 266) = 21.43$ ,  $p < .001$ ,  $\eta_p^2 = .08$ , such that Asian-born participants reported feeling more incompetent ( $M = 2.67$ ,  $SD = 1.55$ ) than American-born non-Asian participants ( $M = 1.85$ ,  $SD = 1.40$ ). There was no evidence to support any other effects on feeling incompetent,  $ps > .19$ .

Participants in the unfamiliar conditions felt less sociable ( $M = 2.52$ ,  $SD = 1.51$ ) than participants in the familiar conditions ( $M = 3.38$ ,  $SD = 1.61$ ),  $F(1, 264) = 17.36$ ,  $p < .001$ ,  $\eta_p^2 = .06$ . There was no evidence to support any other effects on feeling sociable,  $ps > .30$ .

### **Anomie, Self-Efficacy, and Life Disengagement**

There was a significant effect of participant ethnicity on anomie,  $F(1, 267) = 37.70, p < .001, \eta_p^2 = .12$ . Asian-born participants reported feeling more anomie ( $M = 2.90, SD = .65$ ) than American-born non-Asian participants ( $M = 2.41, SD = .67$ ).

There was also an unanticipated two-way interaction between celebrity ethnicity and familiarity,  $F(1, 267) = 4.09, p = .044, \eta_p^2 = .02$ . Participants in the familiar Asian condition reported more anomie ( $M = 2.76, SD = .74$ ) than participants in the familiar American condition ( $M = 2.57, SD = .68$ ),  $t(168) = -1.78, p = .077$ . Additionally, participants in the unfamiliar American condition reported more anomie ( $M = 2.80, SD = .79$ ) than participants in the unfamiliar Asian condition ( $M = 2.61, SD = .67$ ),  $t(168) = 1.70, p = .091$ . There was no evidence to support any other effects on anomie,  $ps > .61$ .

There was also a significant effect of participant ethnicity on self-efficacy,  $F(1, 267) = 38.29, p < .001, \eta_p^2 = .13$ . Asian-born participants reported less self-efficacy ( $M = 3.56, SD = .56$ ) than American-born non-Asian participants ( $M = 3.96, SD = .52$ ). There was no evidence to support any other effects on self-efficacy,  $ps > .12$ .

In addition, there was a significant effect of participant ethnicity on life disengagement,  $F(1, 267) = 28.71, p < .001, \eta_p^2 = .10$ . Asian-born participants reported feeling more life disengagement ( $M = 2.34, SD = .82$ ) than American-born non-Asian participants ( $M = 1.82, SD = .77$ ). There was also an unanticipated significant two-way interaction between participant ethnicity and familiarity,  $F(1, 267) = 4.73, p = .030, \eta_p^2 = .02$ . Asian-born participants in familiar conditions reported more life disengagement ( $M = 2.51, SD = .87$ ) than Asian-born participants in unfamiliar conditions ( $M = 2.16,$

$SD = .74$ ),  $t(123) = 2.39$ ,  $p = .018$ . However, there was no evidence to support a difference between American-born non-Asian participants,  $p = .574$ . There was no evidence to support any other effects on life disengagement,  $ps > .11$ .

### **Mediation**

We utilized the same mediation procedure as in Study 2.

**Need satisfaction level.** Bootstrapping results showed that feeling out of the loop mediated the effect of familiarity on need satisfaction level with a point estimate of .20 (BCA CI of .11 to .30). However, there was no evidence that feeling as if they failed mediated the effect of familiarity on need satisfaction level with a point estimate of .07 (BCA CI of -.02 to .16), nor was there evidence that feeling incompetent mediated the relationship with a point estimate of .02 (BCA CI of -.003 to .06) (see Figure 8). In order to explore whether importance mediated the relationship between familiarity conditions and need satisfaction, we also ran another multiple mediator model adding self-rated pop culture importance as a mediator. When we did this, there was no evidence that importance mediated the relationship with a point estimate of -.001 (BCA CI of -.02 to .01), and, again, only feeling out of the loop mediated the relationship with a point estimate of .20 (BCA CI of .11 to .31).

**Mood.** Bootstrapping results showed that feeling out of the loop mediated the effect of familiarity on mood with a point estimate of .19 (BCA CI of .11 to .29), as did feeling incompetent, with a point estimate of .04 (BCA CI of .01 to .11). However, there was no evidence that feeling as if they failed mediated the effect of familiarity on mood with a point estimate of .01 (BCA CI of -.10 to .11). The mediation on need satisfaction supports *Hypothesis 5*, however, the mediation on mood does not provide

evidence to support *Hypothesis 5*. Thus, we found partial support for *Hypothesis 5*. In order to explore whether importance mediated the relationship between familiarity conditions and need satisfaction, we also ran another multiple mediator model adding self-rated pop culture importance as a mediator. When we did this, there was no evidence that importance mediated the relationship with a point estimate of  $-.001$  (BCA CI of  $-.03$  to  $.01$ ), and, again, feeling out of the loop mediated the relationship with a point estimate of  $.18$  (BCA CI of  $.10$  to  $.29$ ) and feeling incompetent also mediated the relationship with a point estimate of  $.04$  (BCA CI of  $.01$  to  $.11$ ).

### **Discussion**

These results replicated many previous findings of familiarity effects on feeling out of the loop, need satisfaction, mood, failure, incompetence, and feeling sociable. Again, importance of pop culture did not matter such that even those who rated pop culture as less important to them felt bad when they were in the unfamiliar conditions.

Unfortunately, these results did not support a situation where people may feel better when unfamiliar with pop culture, and in fact, showed the opposite of what we predicted. American-born non-Asian participants experienced lower need satisfaction when they were unfamiliar with Asian, rather than American, celebrities. This occurred even though American-born non-Asian participants rated American celebrities as more important to them than Asian celebrities and recognizing American celebrities as more important to them than recognizing Asian celebrities. This could be due to an unfortunate issue with our manipulation where American-born non-Asian participants had less recognition of Asian celebrities than American celebrities. Results also showed that American-born non-Asian participants felt more out of the loop when they



were unfamiliar with Asian, rather than American, celebrities. Because we propose feeling out of the loop as the process that leads participants in unfamiliar conditions to feel lower need satisfaction, it would make sense that when American-born non-Asian participants felt more out of the loop in the unfamiliar Asian celebrity condition they also felt lower need satisfaction. These results also provide further evidence for the extreme sensitivity of our ostracism detection system where even though American-born non-Asian participants report that Asian celebrities are less important to them, they feel worse when they don't recognize them.

Additionally, as predicted, there was no difference in the unfamiliar conditions for Asian-born participants. However, Asian-born participants report higher need satisfaction in the familiar American celebrity condition compared to the familiar Asian condition. Perhaps because these students live in America and thus these celebrities are exceptionally relevant to them and they have a high investment in knowing American pop culture, they felt better. Asian-born participants reported both the importance of American versus Asian celebrities and recognizing American versus Asian celebrities as equally important, suggesting that they would care equally about both. It could be that recognizing the American celebrities was less expected, potentially leading them to feel better when they did recognize them. However, we do not have any questions aimed at this idea.

Oddly, if we look at only American-born non-Asian participants viewing American celebrities (which most closely matches the samples of prior studies), there is only a marginally significant difference between familiar and unfamiliar conditions,  $t(74) = 1.65, p = .104$ . Similarly, there is no significant difference between familiar and

unfamiliar Asian celebrity conditions when looking only at Asian-born participants,  $t(60) = .089, p = .929$ . It is unclear why these effects would not replicate. There is most likely a power issue (at least in the case of American-born non-Asian participants), as there is a marginally significant effect, but this study also differs from previous studies in a few ways: 1) there were only ten celebrities rather than the 16 that are usually used, 2) we did not include two celebrities from the opposite stimulus set as we typically do to decrease suspicion, and 3) participants indicated whether they recognized the celebrities rather than rating how familiar they were with them. The latter seems the most likely reason for our failure to replicate previous findings within the only American-born non-Asian sample. Participants are likely to have felt less out of the loop on the celebrities when rating recognition rather than familiarity. Thus, the effect may have been weaker in the unfamiliar condition compared to studies that used familiarity ratings. Taken together our results suggest that *what* people are out of the loop on does not matter, and in fact may suggest that irrelevant stimuli may even have a larger negative effect than seemingly more relevant stimuli.

## STUDY 5

After assessing whether *who* people are out of the loop from and *what* people are out of the loop on matters, we explored whether *when* people are out of the loop matters. To explore the *when*, we will manipulate the desirability of being in the loop on pop culture. Being in the loop on pop culture might be considered desirable if it makes you be viewed as more competent or sociable, whereas it would be undesirable if it makes you be viewed as less competent or sociable. We expected that in the undesirable condition that participants would not care as much about being out of the loop as in the desirable condition.

Again, we predicted a main effect of familiarity such that participants in the unfamiliar conditions would feel more out of the loop, less need satisfaction, and less positive mood than participants in the familiar conditions (*Hypotheses 1-3*). However, we predicted these main effects would be qualified by an interaction such that participants who were in the unfamiliar/desirable condition would feel less need satisfaction and less positive mood than participants in the unfamiliar/undesirable condition (*Hypothesis 4a*). Additionally, participants in the familiar/desirable condition would feel higher need satisfaction and more positive mood than participants in the familiar/undesirable condition (*Hypothesis 4b*). We predicted that feeling as if they

failed or feeling incompetent would not mediate the familiarity-need satisfaction or familiarity-mood relationships, but feeling out of the loop would (*Hypothesis 5*).

## **Method**

### **Participants**

One hundred and seventy-two participants<sup>12</sup> (63 males,  $M_{\text{age}} = 19$ , 77.9% Caucasian) were recruited from Purdue University's Introductory Psychology participant pool.

### **Design**

The study was a 2 (desirability: desirable vs. undesirable) x 2 (familiarity: familiar vs. unfamiliar) between-subjects design.

### **Procedure**

Participants signed up for an online study about "Current Events." Participants first read an informed consent sheet and had to click "I agree" to be directed to the study. First they were asked demographic questions. Pre-task importance was not measured in this study as it may have raised suspicions to the participants. They were then randomly assigned to one of our four conditions, given the manipulation of desirability (see below), and then told:

"In the current research, we're interested in exploring the connection between pop culture *preferences* and personality. Many websites (e.g., BuzzFeed) use people's preferences to provide personality information, and we're interested in their accuracy."

Participants were then shown the same familiar and unfamiliar quiz sets from Study 1. The rest of the study was the same as Study 1, answering the same questions as in this study (please see Table 9 for correlations among dependent variables and Cronbach's alphas for aggregate dependent variables), in addition to the Big 5 (which was asked prior to the task in Study 1) and reflective need and mood questions. They were also asked manipulation check items for the desirability manipulation. We asked them "In general, how important do you think pop culture knowledge is?" on a 7-point scale with "1" being "not at all important" and "7" being "very important" We also asked a more straightforward manipulation check item, "According to the instructions you read at the beginning of the study, people who know a lot about popular culture are viewed more positively by others than people do not know a lot about popular culture," with 1 being "strongly disagree," and 7 being "strongly agree."

They were then thanked and debriefed, and awarded credit.

### **Desirability Manipulation**

**Desirable condition.** This study is part of a line of research on pop culture. In our past research, we explored the connection between pop culture knowledge and personality.

Our research has shown that knowledge of pop culture can make you more appealing as a friend. Those who know a lot about pop culture are seen as more fun and interesting. In addition, people who know less about pop culture may be viewed as unintelligent or not with it. Thus, recognizing pop culture targets is very important for connecting with others and getting ahead.

**Undesirable condition.** This study is part of a line of research on pop culture. In our past research, we explored the connection between pop culture knowledge and personality. Our research has shown that knowledge of pop culture can make you less appealing as a friend. Those who know a lot about pop culture are seen as less fun and interesting. In addition, people who know more about pop culture may be viewed as unintelligent or shallow. Thus, recognizing pop culture targets may prevent connecting with others and getting ahead.

## Results

### Manipulation Checks

**Familiarity manipulation check.** We successfully manipulated familiarity. There was a significant effect of familiarity condition on recognition of the options,  $F(1, 168) = 159.84, p < .001, \eta_p^2 = .49$ . Participants in the unfamiliar conditions reported significantly less recognition of the options ( $M = 2.93, SD = 1.63$ ) than participants in the familiar conditions ( $M = 5.81, SD = 1.32$ ). There was no evidence to support an effect of importance nor an interaction between familiarity and desirability conditions on recognition,  $ps > .13$ .

**Desirable manipulation check.** We successfully manipulated desirability. Looking at the specific manipulation check question that asked participants what they read at the beginning of the study, there is a significant difference between desirability conditions on response,  $F(1, 164) = 11.49, p = .001, \eta_p^2 = .07$ . Participants in the undesirable conditions ( $M = 3.31, SD = 1.80$ ) reported that being in the loop on pop culture was less important than participants in the important conditions ( $M = 4.21, SD = 1.60$ ). There was also an unanticipated main effect of familiarity condition on the

desirability manipulation check,  $F(1, 164) = 5.33, p = .022, \eta_p^2 = .03$ . Participants in the unfamiliar conditions ( $M = 3.42, SD = 1.71$ ) reported that being in the loop on pop culture was less important than participants in the familiar conditions ( $M = 4.06, SD = 1.76$ ). There was no evidence to support an interaction between familiarity and desirability conditions on the desirable manipulation check,  $p = .739$ .

### **Feeling Out of the Loop**

There was a significant effect of familiarity condition on feeling out of the loop,  $F(1, 167) = 48.71, p < .001, \eta_p^2 = .23$  (please see Table 10 for relationships with all dependent variables). Participants in the unfamiliar conditions ( $M = 3.97, SD = 2.06$ ) reported feeling significantly more out of the loop than participants in the familiar conditions ( $M = 2.07, SD = 1.35$ ), supporting *Hypothesis 1*. There was no evidence to support an effect of desirability or an interaction between familiarity and desirability on feeling out of the loop,  $p$ 's  $> .22$ , thus there was no evidence to support *Hypotheses 4a* and *4b*.

### **Reflexive Need Satisfaction Levels and Mood**

There was a significant effect of familiarity condition on need satisfaction,  $F(1, 168) = 11.12, p = .001, \eta_p^2 = .06$ . Supporting *Hypothesis 2*, participants in the unfamiliar conditions reported feeling significantly less need satisfaction ( $M = 4.48, SD = .95$ ) than participants in the familiar conditions ( $M = 4.96, SD = .90$ ). There was no evidence that desirability condition was related to need satisfaction,  $p = .146$ . Contrary to predictions, there was no evidence to support an interaction between the familiarity and desirability conditions on need satisfaction,  $F(1, 168) = 2.55, p = .112, \eta_p^2 = .02$  (see Figure 9). Thus, there was no evidence to support *Hypothesis 4a*.

There was a significant effect of familiarity condition on mood,  $F(1, 168) = 7.04$ ,  $p = .009$ ,  $\eta_p^2 = .04$ , thus supporting *Hypothesis 3*. Participants in the unfamiliar conditions reported feeling significantly more negative ( $M = 5.07$ ,  $SD = 1.01$ ) than participants in the familiar conditions ( $M = 5.49$ ,  $SD = .99$ ). There was no evidence that desirability condition was related to participants' mood,  $p = .222$ . In line with our hypothesis, there was a marginally significant interaction between the familiarity and desirability conditions on mood,  $F(1, 168) = 3.54$ ,  $p = .062$ ,  $\eta_p^2 = .02$ . However, the simple effects do not support *Hypothesis 4b* regarding the interaction. For those in the unfamiliar conditions, participants in the desirable condition ( $M = 5.32$ ,  $SD = .99$ ) reported a more positive mood than those in the undesirable condition ( $M = 4.85$ ,  $SD = .99$ ),  $t(87) = 2.25$ ,  $p = .027$ . There was no evidence to support a difference for those in the familiar conditions,  $t(81) = -.453$ ,  $p = .652$ .

### **Failure**

Participants in the unfamiliar conditions reported feeling as if they failed significantly more ( $M = 3.44$ ,  $SD = 1.93$ ) than participants in the familiar conditions ( $M = 1.84$ ,  $SD = 1.17$ ),  $F(1, 165) = 40.91$ ,  $p < .001$ ,  $\eta_p^2 = .20$ . There was no evidence that desirability condition nor an interaction between the familiarity and desirability conditions were related to feeling as if they failed,  $ps > .33$ .

### **Internet Behavior**

There was evidence that participants in the unfamiliar conditions attempted to get back in the loop, as they reported looking things up marginally more ( $M = 1.95$ ,  $SD = 1.62$ ) than participants in the familiar conditions ( $M = 1.53$ ,  $SD = 1.62$ ),  $F(1, 164) = 3.44$ ,  $p = .066$ ,  $\eta_p^2 = .02$ . There was no evidence that desirability condition nor an



interaction between the familiarity and desirability conditions were related to internet behavior,  $ps > .34$ .

### **Feeling Incompetent and Sociable**

There was also a significant effect of familiarity condition on feeling incompetent. Participants in the unfamiliar conditions reported feeling significantly more incompetent ( $M = 2.67, SD = 1.79$ ) than participants in the familiar conditions ( $M = 1.81, SD = 1.31$ ),  $F(1, 165) = 12.73, p < .001, \eta_p^2 = .07$ . There was no evidence that desirability condition nor an interaction between the familiarity and desirability conditions were related to feeling incompetent,  $ps > .27$ .

Participants in the unfamiliar conditions felt less sociable ( $M = 3.00, SD = 1.45$ ) than participants in the familiar conditions ( $M = 3.70, SD = 1.85$ ),  $F(1, 163) = 6.93, p = .009, \eta_p^2 = .04$ . There was no evidence that desirability condition was related to feeling sociable,  $F(1, 163) = .547, p = .460, \eta_p^2 = .003$ . However, there was a marginally significant interaction between the familiarity and desirability conditions,  $F(1, 163) = 3.42, p = .066, \eta_p^2 = .02$ . Simple effects analyses showed that participants in the unimportant conditions differed in feeling sociable),  $t(85) = 3.26, p = .002$ . Participants in the undesirable unfamiliar condition reported feeling less sociable ( $M = 2.69, SD = 1.43$ ) than participants in the undesirable familiar condition ( $M = 3.83, SD = 1.83$ ). There was no evidence to support a difference for participants in the desirable conditions,  $t(78) = .54, p = .592$ .

### **Anomie**

There was a marginal main effect of familiarity condition on anomie,  $F(1, 165) = 2.88, p = .092, \eta_p^2 = .02$ . Participants in the unfamiliar conditions reported marginally

greater anomie ( $M = 2.86$ ,  $SD = .69$ ) than participants in the familiar conditions ( $M = 2.66$ ,  $SD = .81$ ). There was no evidence that desirability condition or an interaction between the familiarity and desirability conditions were related to anomie,  $ps > .47$ .

### **Mediation**

We utilized the same mediation procedure as in Studies 2-4.

**Need satisfaction level.** Bootstrapping results showed that feeling out of the loop mediated the effect of familiarity on need satisfaction level with a point estimate of .42 (BCA CI of .24 to .66). However, there was no evidence that feeling as if they failed mediated the effect of familiarity on need satisfaction level with a point estimate of .15 (BCA CI of -.03 to .34), nor was there any evidence that feeling incompetent mediated the relationship with a point estimate of .04 (BCA CI of -.05 to .16) (see Figure 10).

**Mood.** Bootstrapping results showed that feeling out of the loop mediated the effect of familiarity on mood with a point estimate of .46 (BCA CI of .26 to .73). However, there was no evidence that feeling as if they failed mediated the effect of condition on mood with a point estimate of .11 (BCA CI of -.09 to .32), nor was there any evidence that feeling incompetent mediated the relationship with a point estimate of .08 (BCA CI of -.01 to .24). These mediation results support *Hypothesis 5*.

### **Discussion**

Study 5 examined whether *when* people are out of the loop matters. The results showed that there was only a familiarity main effect on need satisfaction and no interaction. This suggests again that it is difficult to moderate the effects of being out of the loop on pop culture and people experience lower need satisfaction no matter

what when they are out of the loop on pop culture. There was an interaction between familiarity and desirability condition on mood, however the simple effects were in an unanticipated direction. For those in the unfamiliar condition, participants had a better mood when pop culture knowledge was desirable rather than undesirable. A similar trend was found in the participants feeling sociable. This is a difficult finding to make sense of – it could be that somehow people who know more about pop culture ended up in the unfamiliar/desirable condition and thus either a.) knew more of the celebrities, or b.) buffered their feelings by thinking about all of the pop culture knowledge they do have. However, as this finding was not replicated with need satisfaction it may be difficult to read very much into it. In the future it is important to test this idea again with a different manipulation. Potentially providing a more realistic manipulation of desirability (e.g., a fake news article discussing the advantages or disadvantages of having pop culture knowledge) may allow for a better test of our hypotheses.

Many other results were replicated from previous studies in the current study. Participants in the unfamiliar conditions reported feeling more out of the loop, lower need satisfaction, more negative mood, more feelings of failure, and more incompetent and less sociable than participants in the familiar conditions. We did not measure pre-task self-rated pop culture importance in this study as it may have set off suspicion of our manipulation. The mediations that have been replicated many times were also replicated in this study. One unique finding of this study was a marginal main effect of familiarity condition on anomie in the anticipated direction. This suggests that anomie may be impacted by being unfamiliar with pop culture.

## GENERAL DISCUSSION

Across five studies, a fairly consistent story formed about being out of the loop on pop culture. Participants in unfamiliar pop culture conditions reported feeling more out of the loop, lower need satisfaction, and (sometimes) a more negative mood than participants in familiar pop culture conditions. When participants were in unfamiliar conditions they also reported feeling as if they failed more than participants in familiar conditions, suggesting that feelings of failure may coincide with feeling out of the loop. Many studies have shown that participants in unfamiliar conditions reported feeling more incompetent and less sociable during the task as well. Oftentimes, participants in unfamiliar conditions reported behavior or desired behavior that would help get them back in the loop more than participants in familiar conditions. Consistently, self-rated importance of pop culture did not impact results – even for participants who rated pop culture as less important they still felt bad in unfamiliar conditions. Finally, feeling out of the loop consistently mediated the relationship between familiarity and need satisfaction, with failure and feeling incompetent not mediating the relationship the majority of the time.

In this package of studies we developed a new, more subtle method for testing the effects of being out of the loop on pop culture. Study 1 involved the development of this method and used this method to address some theoretical implications of our

work, and Study 5 successfully utilized this method as well. The new method produced increased feelings of being out of the loop and lower need satisfaction for participants in the unfamiliar condition compared to the familiar condition, replicating previous findings. Importantly, this new method replicated previous findings without hitting participants over the head with instructions that others recognized the pop culture stimuli. Utilizing this method also allowed us to add a control condition that did not involve any pop culture stimuli. Adding a control condition helped us determine that it is being unfamiliar with pop culture that leads people to feel more out of the loop and lower need satisfaction and not that being familiar with pop culture leads people to feel more in the loop and higher need satisfaction. This new method also reduced the feelings of failure that were present in other studies, although they were not removed entirely.

Study 2 attempted to eliminate the feeling of failure that we find to be consistently associated with feeling out of the loop on pop culture. We attempted to do this by pairing success with the presentation of both familiar and unfamiliar celebrities, as well as by moving the focus from recognition of celebrities to speed of realizing whether they recognized them or not. Even when recognition was removed as the main measure and when success was paired with the presentation of unfamiliar pop culture stimuli, participants still felt as if they had failed. This suggests that failure may be a feeling that coincides with feeling out of the loop.

Studies 3-5 attempted to find boundary conditions of the being out of the loop on pop culture effect. Study 3 used ingroups and outgroups to explore whether *who* people were out of the loop on pop culture from matters. Study 4 used personally

relevant and personally irrelevant pop culture stimuli to explore whether *what* people were out of the loop on pop culture from matters. Study 5 used instructions of whether pop culture knowledge was desirable or undesirable to explore whether *when* people were out of the loop on pop culture matters. All of these studies showed that people simply felt bad when they were unfamiliar with pop culture compared to when they were familiar with pop culture. For the most part, *who* people were out of the loop from, *what* people were out of the loop on, and *when* people were out of the loop did not impact how they felt.

The lack of difference within unfamiliar conditions across various situational contexts suggests an effect that is resistant to moderation. These findings are similar to the findings from the ostracism literature that suggest that people have very sensitive ostracism detection systems. Because of this, people experience negative consequences of ostracism regardless of situational factors such as *who* is ostracizing them. Research on being out of the loop has found differences in the negative consequences experienced such that situational factors made some people feel worse (Jones et al., 2009; Jones & Kelly, 2010). Initially being out of the loop on pop culture was theorized as being similar to being out of the loop generally and potentially as a more minimal form of being out of the loop. However, as the effects of being out of the loop on pop culture seem to be operating more like the effects of ostracism, being out of the loop on pop culture may actually be a more severe form of partial ostracism than other circumstances of being out of the loop. Perhaps being out of the loop on pop culture implies that people are out of the loop from a large and important

group – society – leading to it being actually more painful than being out of the loop in a smaller, interacting group.

Being out of the loop on pop culture may also provide more information on one's social standing compared to being out of the loop on a smaller or less widespread knowledge domain. It is possible that people may view others who are in vs. out of the loop on pop culture differently. This could have implications for interacting with individuals who are seen as out of the loop on pop culture. People who are out of the loop on pop culture (or are perceived as out of the loop on pop culture) may be viewed as less sociable, and even potentially less competent. Therefore, actually being out of the loop on pop culture may provide a warning that a person's social standing could be in danger. Results from these studies provide evidence for this possibility, as in four studies participants in the unfamiliar conditions reported feeling less sociable than participants in the familiar conditions. Across five studies, participants in the unfamiliar conditions reported feeling less competent than participants in the familiar conditions. This may have implications for interpersonal interactions.

Finally, these studies demonstrate that people who are unfamiliar with pop culture may attempt, or at least desire, to get back in the loop on pop culture. Participants did this by either reporting that they searched the internet for information on pop culture items they did not recognize or reporting that they wanted to search for these items. This could have potential implications for purchasing behavior following an out of the loop on pop culture experience. For example, if people are unfamiliar with a movie that everyone is talking about, they may spend money to go see that movie, rent it on demand, or even purchase it through Amazon.

### **Limitations**

Although these studies had many strengths, there may be potential limitations as well. For example, in Study 2 we focused on recognizing feelings of knowing rather than on actual recognition of celebrity, but still did not eliminate the feeling of failure. In the future, making the recognition of pop culture non-essential to the study may further help to answer the question of whether feelings of failure always coincides with feeling out of the loop. It is also possible that the methods we utilized lead people to experience feelings of failure but that being unfamiliar with pop culture in a group conversation may not induce feelings of failure. It would be useful to conduct a study where someone is left out of the loop on pop culture in a conversation and see if this still leads to feelings of failure.

Study 4's manipulation also has a limitation in that the recognition of American and Asian celebrities differed for American-born non-Asian participants, as might be expected when trying to study a less relevant form of pop culture. This could have contributed to the unpredicted finding that American-born non-Asian participants felt more out of the loop and lower need satisfaction in the unfamiliar Asian celebrity condition than the unfamiliar American celebrity condition. To better test the hypothesis regarding relevance of the pop culture stimuli, it would be optimal to find a pop culture stimuli that is both less relevant and equally familiar to participants – although this may be a difficult set of stimuli to develop. Additionally, our self-rated pop culture importance measure is only one item. In the future, it might be helpful to use multiple items to assess pop culture importance and see if this leads to importance impacting how people feel when they are unfamiliar with pop culture.



Another limitation throughout these studies is the lack of meaningfully significant results on our behavioral intentions or pop culture engagement measures. Therefore, it may be beneficial to develop new questions that better assess behavioral intentions and pop culture engagement. We did, however, find consistent results on people looking up stimuli they didn't know on the internet (when possible) or wanting to look up stimuli they didn't know on the internet. Although we did find evidence for this specific behavioral intention, and in some studies actual behavior, to get back in the loop, it would be good to measure more meaningful behaviors (e.g., purchasing behavior). In the future, planning a study with a logical behavior that people can engage in following their exposure to pop culture (e.g., hearing people talk about a movie they saw and then giving participants the option of watching that movie) would further this research.

One final limitation of the studies was that no downstream consequences of being out of the loop on pop culture were found. There were inconsistent effects on anomie and life disengagement, but nothing that told a strong or consistent story. Maybe these downstream consequences only occur after more chronic experiences of being out of the loop on pop culture.

### **Future Directions**

There are many potential avenues for future research on being out of the loop on pop culture. One important future direction is to continue what was started here - looking for boundary conditions. Although the boundary conditions explored here did not, for the most part, show any differences within unfamiliar conditions, there are potentially many other ways to operationalize the *who*, *what*, and *when* of being out of

the loop on pop culture. Before we accept that moderation is unlikely, we should attempt to strengthen these manipulations of potential boundary conditions. For example, although American-born non-Asian students seemed to care when they were unfamiliar with Asian actors, maybe they would not care if they were unfamiliar with a lesser known group they are unlikely to ever actually know about or desire to know about (e.g., Icelandic musicians). Additionally, people who are older may not care about being in the current pop culture loop, and thus they may feel less negative than younger people when exposed to unfamiliar pop culture targets.

Looking at how people perceive others who are out of the loop and in the loop on pop culture and the potential interpersonal implications of being out of the loop on pop culture are also important. Do people perceive others who are out of the loop on pop culture as less sociable and competent, matching up with how people report feeling? In addition, are people more likely to ostracize others who are out of the loop on pop culture from social situations? If people view others who are out of the loop on pop culture as less sociable, maybe they would prefer to not be friends with them, and in turn avoid or exclude them from social interactions.

Finally, these studies provide evidence that people attempt to, or want to, get back in the loop on pop culture when they are unfamiliar with pop culture, but further exploring potential behavioral outcomes is a necessary future direction. As mentioned above, being out of the loop on pop culture may have implications for purchasing behavior, and looking into this is important. In addition, people may avoid situations where pop culture is likely to come up, which may also have harmful effects. Avoidance of situations where pop culture may come up may be more relevant for

people who feel out of the loop on pop culture consistently. It would also be interesting to look into an individual difference of pop culture knowledge and explore whether people who lack pop culture knowledge are more likely to engage in behaviors to either get back in the loop and/or avoid situations involving pop culture.

### **Conclusions**

Taken together, these five studies provide a strong package that utilized multiple diverse methods and achieved consistent results. Overall, participants in unfamiliar conditions reported feeling more out of the loop and lower need satisfaction than participants in familiar conditions. Across four different potential moderators – *who* people are out of the loop from, *what* people are out of the on, *when* people are out of the loop, and personal importance of pop culture – results suggested that regardless of these factors, people felt badly when they were unfamiliar with pop culture. Thus, being out of the loop on pop culture may be a particularly strong experience impacting many people negatively.

## NOTES

1. All sample sizes were calculated using G\*Power. In calculating the sample sizes we used a .05 alpha error probability, .95 power, and the number of groups in each F-test (3 for Study 1, 4 for Studies 2, 3, and 5, and 8 for Study 4). We used the average  $n_p^2$  for each main dependent variable from the previous research (as shown in the meta-analysis section). As mood had the lowest average effect size, we used this calculation to determine the appropriate sample size.
2. All dependent variables were analyzed for each study. However, they were only reported in the results when there was a significant or marginally significant finding.
3. Unless otherwise noted, all results were analyzed using ANOVAs, with t-tests to follow up significant interactions.
4. Four participants were removed from analyses for being under the age of 18, as we did not have IRB approval to analyze their data.
5. Reflective need satisfaction and mood were looked at in Studies 2-5. They were entered into a 2 (familiarity condition) x 2 (feedback, group, ethnicity, or desirability condition) x 2 (reflexive and reflective need satisfaction and mood) repeated-measures ANOVA with reflexive and reflective need satisfaction and mood as the within-subjects measure (or a 2 x 2 x 2 x 2 in Study 4). In all studies

there were two-way interactions between familiarity and measure with participants in the unfamiliar conditions recovering more than those in the familiar conditions. Throughout Studies 2-5, if there was no moderation between the variables initially, there was never differential recovery based on condition, and thus, the results are not discussed in detail.

6. Eight participants were removed from analyses for being under the age of 18, as we did not have IRB approval to analyze their data.
7. Ohio State University was selected as the outgroup because pre-testing showed Purdue University students felt less identified with Ohio State University students ( $M = 3.31, SD = 2.05$ ) than Indiana University students ( $M = 3.84, SD = 2.08$ ), but Purdue still competes against Ohio State in athletics, potentially making them a rival outgroup.
8. Sixty-five participants were not included in the analyses as they were other ethnicities (e.g., Indian), White but not born in America (e.g., European), or of Asian ethnicity but born in America. As the celebrities used were either American or East Asian celebrities, we wanted to make it so the people in the study were born in America or East Asia, making the celebrities more relevant to *their* culture. In order to ensure an adequate sample size, we had to go outside of the prescreen sample and open up the study to all of the students in the SONA system, giving us many responses from people who did not fit clearly into either category (e.g., Indian participants). Additionally, it would be unclear whether American born Asian participants would fit into the “American-born” category

and not care about Asian celebrities, or if they would fit into the “Asian ethnicity” category and care more about Asian celebrities.

9. Twenty-nine of these participants participated in the study for extra credit rather than for credits for Introductory Psychology. When these participants were removed from analyses, the results remained largely unchanged.
10. Nine of these participants completed the study in the lab rather than online. Efforts were made to make this as similar to participating online as possible. When these participants were removed from analyses, the results remained largely unchanged.
11. Informal pre-testing with Purdue graduate students and their friends provided information on which Asian celebrities were most popular amongst both American and Asian people as well as which Asian celebrities were less familiar with Asian people.
12. Five participants were removed from analyses for being under the age of 18, as we did not have IRB approval to analyze their data.

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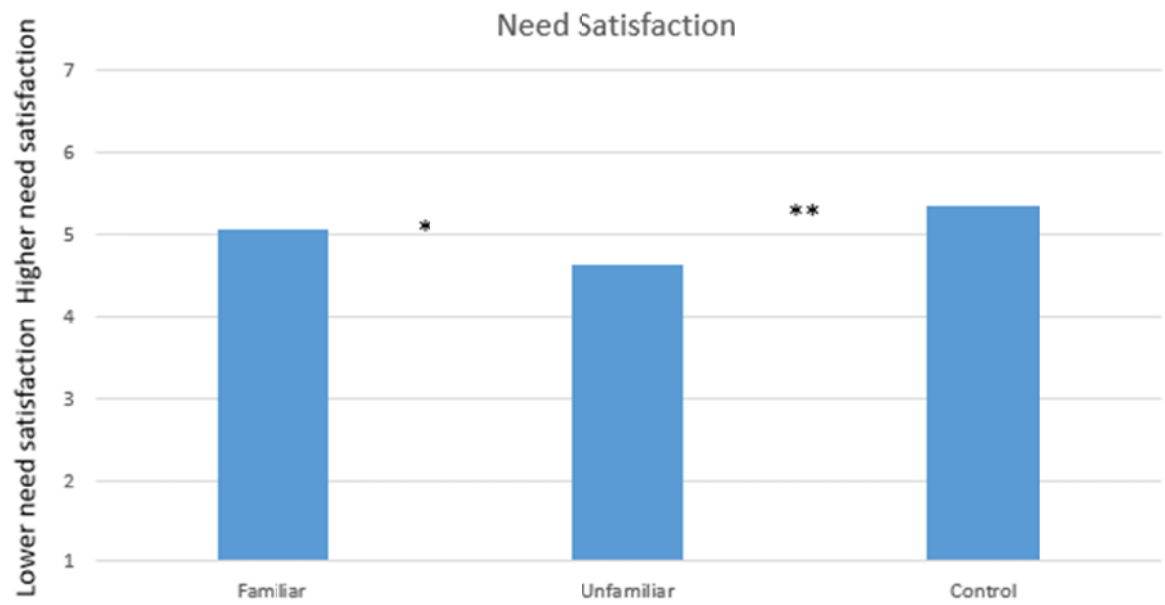
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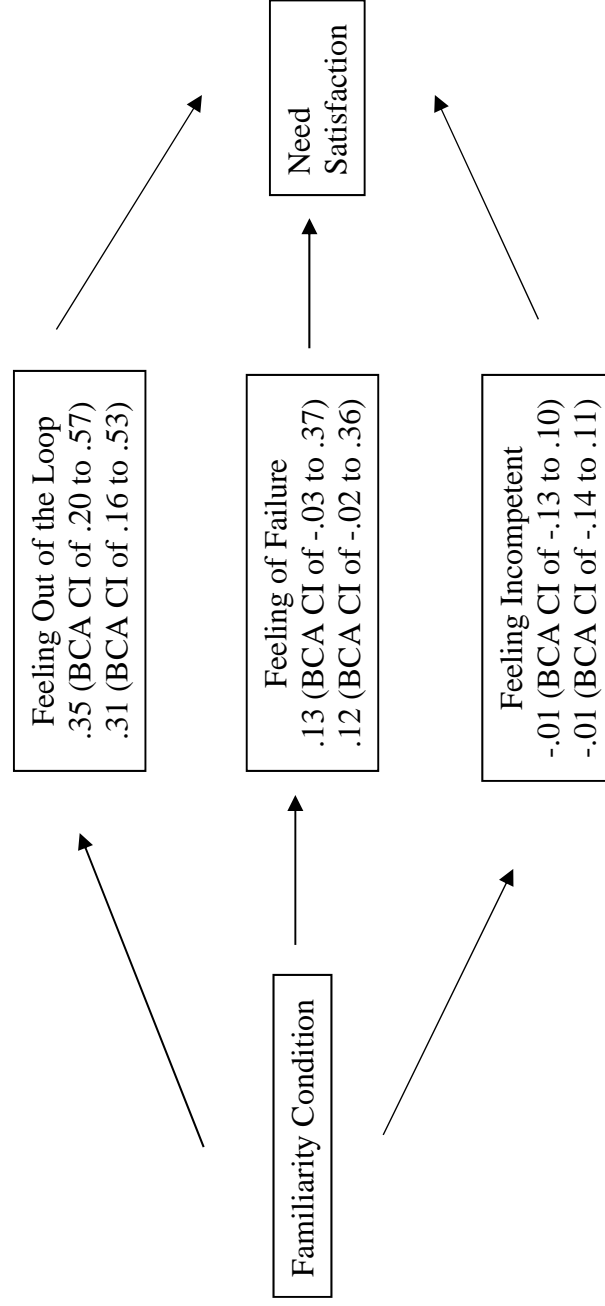
## APPENDICES

## Appendix A. Figures



Note. † $p < .10$ , \* $p < .05$ , \*\* $p < .01$

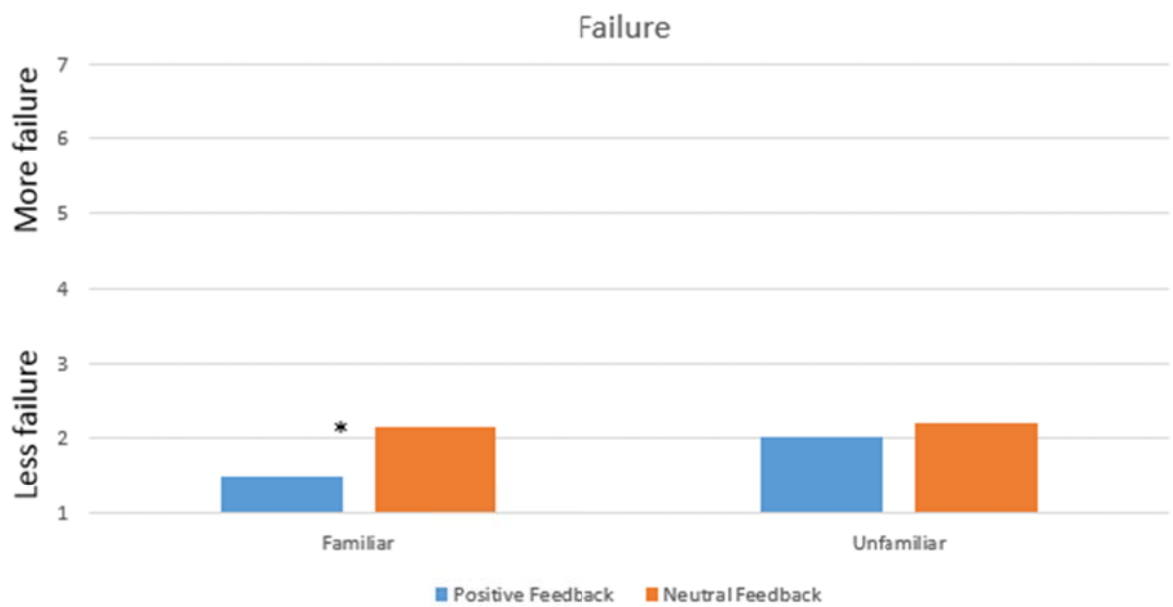
Figure 1. Effect of familiar, unfamiliar, and control conditions on need satisfaction in Study 1.



Original direct effect of X on Y –  $p < .001$ ,  $p = .013$

Reduced direct effect of X on Y –  $p = .131$ ,  $p = .901$

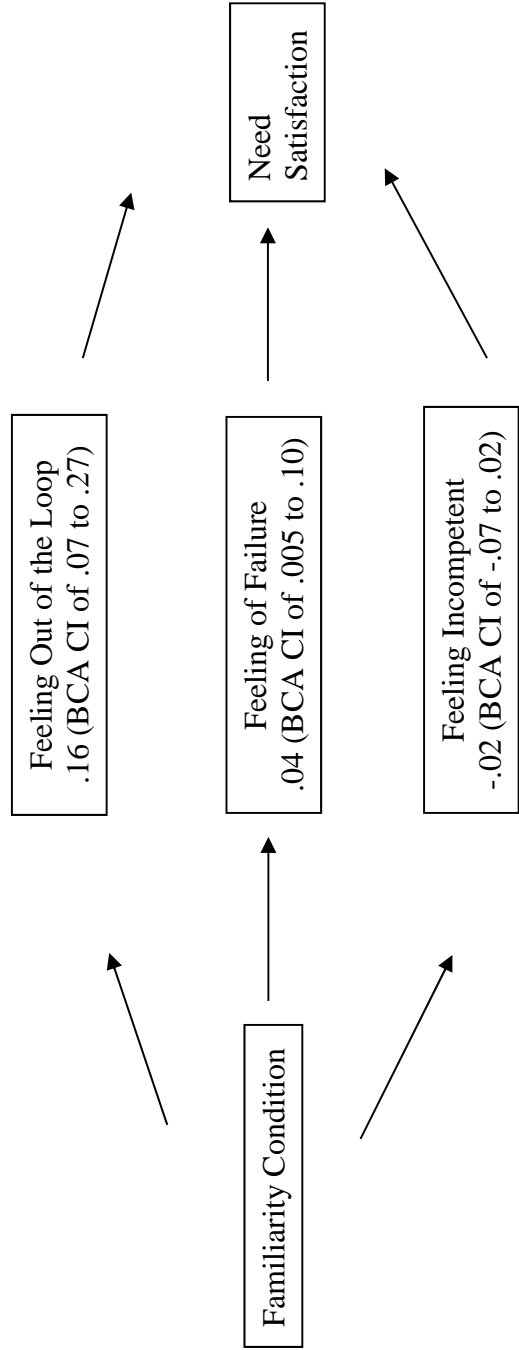
Figure 2. Mediation between familiarity condition and need satisfaction by feeling out of the loop and feeling of failure.



Note. † $p < .10$ , \* $p < .05$ , \*\* $p < .01$

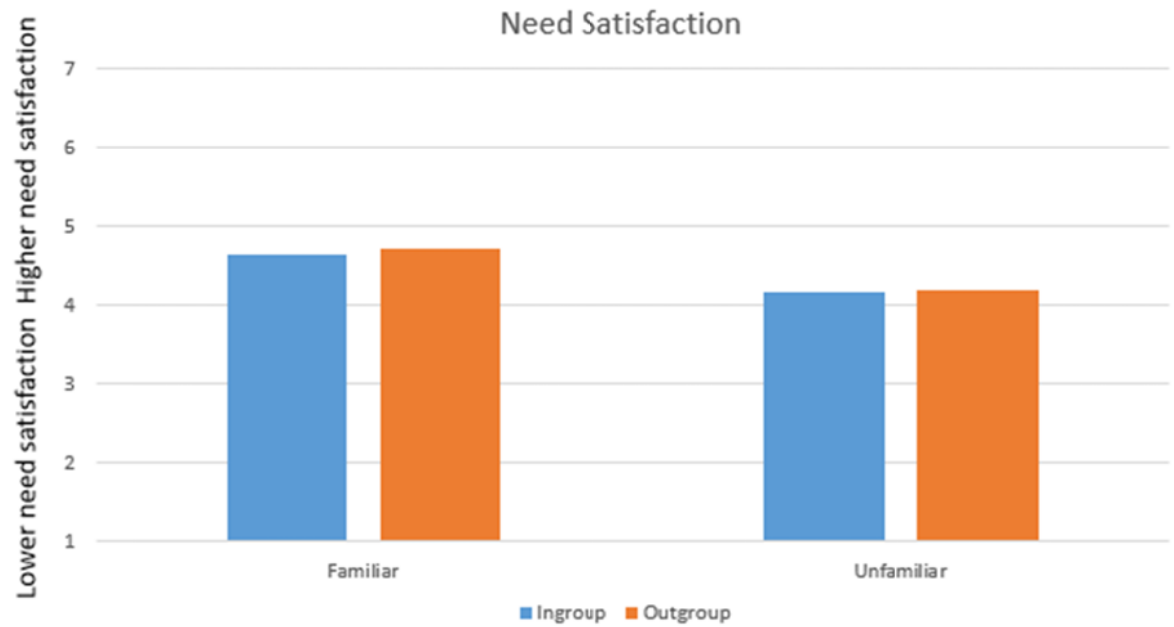
Figure 3. Two-way interaction between familiarity and feedback on failure in Study 2.





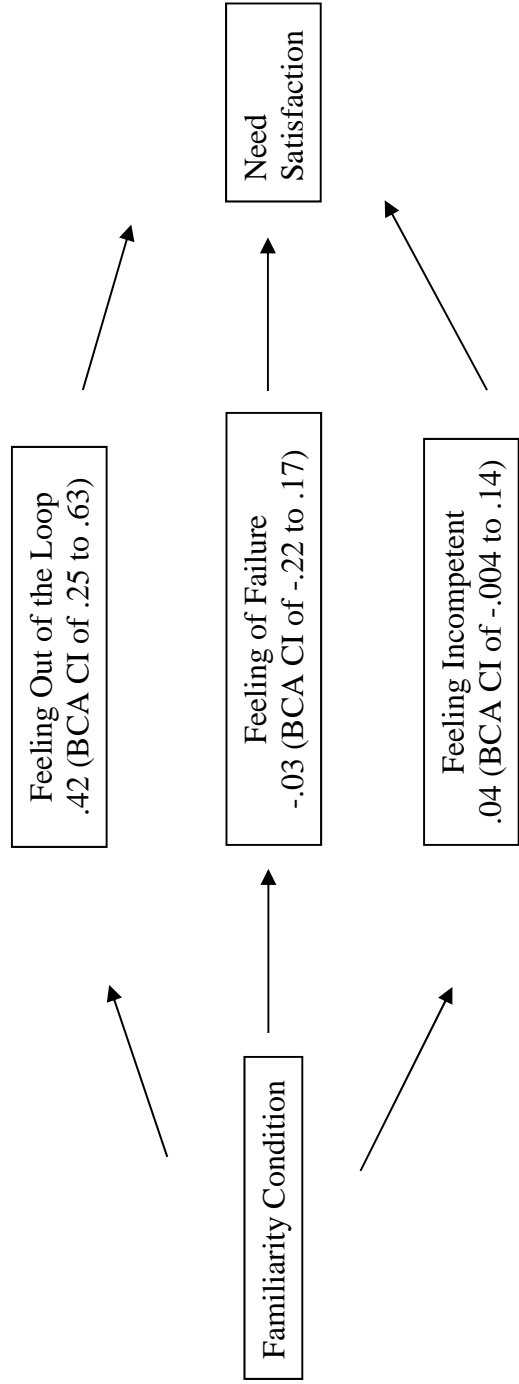
Original direct effect of X on Y –  $p = .035$   
 Reduced direct effect of X on Y –  $p = .796$

Figure 4. Mediation between familiarity condition and need satisfaction by feeling out of the loop and feeling of failure.



Note. † $p < .10$ , \* $p < .05$ , \*\* $p < .01$

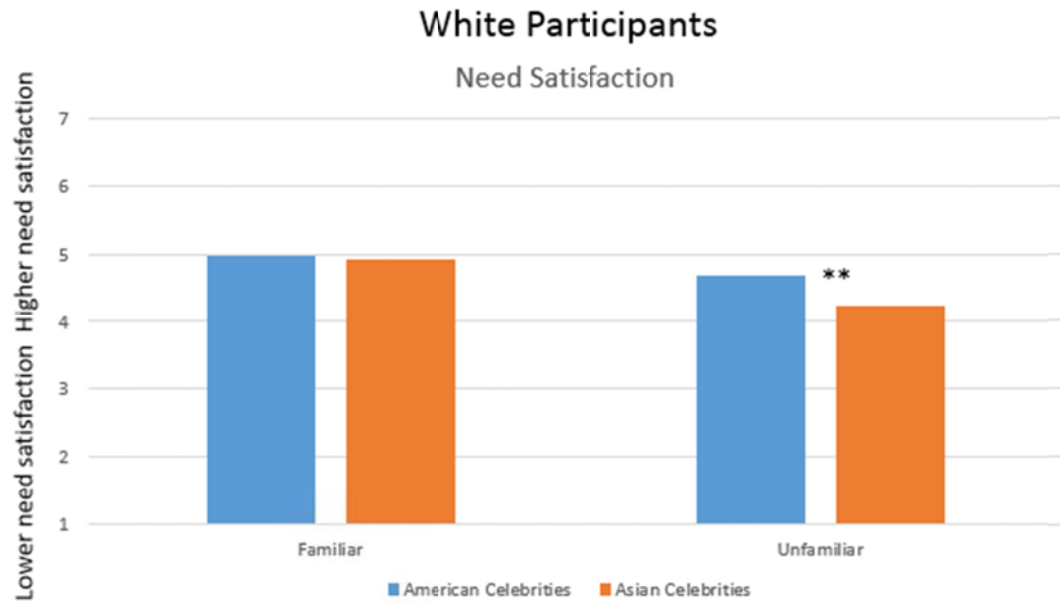
Figure 5. Two-way interaction between familiarity and group condition on need satisfaction in Study 3.



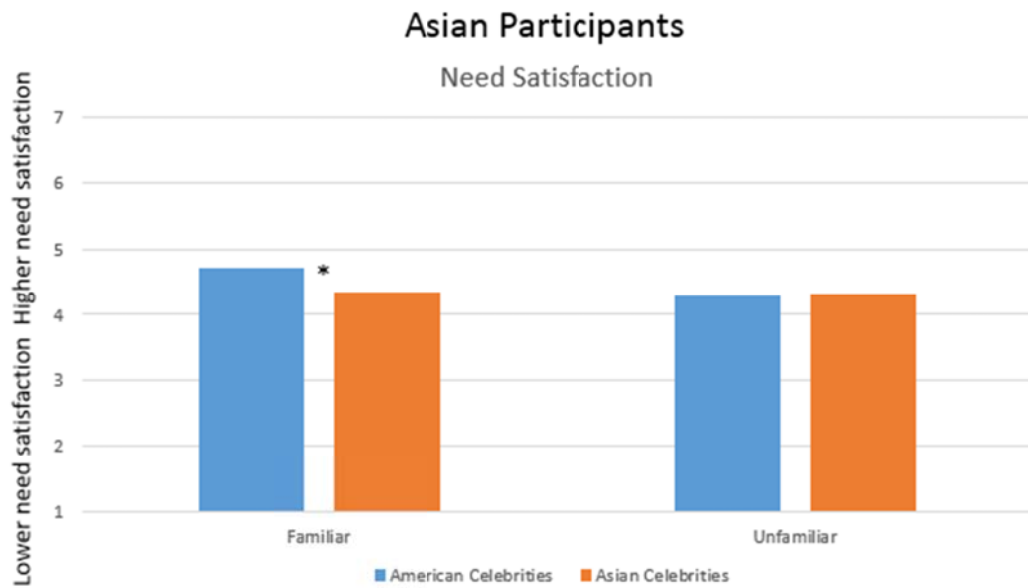
Original direct effect of X on Y –  $p < .001$

Reduced direct effect of X on Y –  $p = .684$

Figure 6. Mediation between familiarity condition and need satisfaction by feeling out of the loop and feeling of failure.

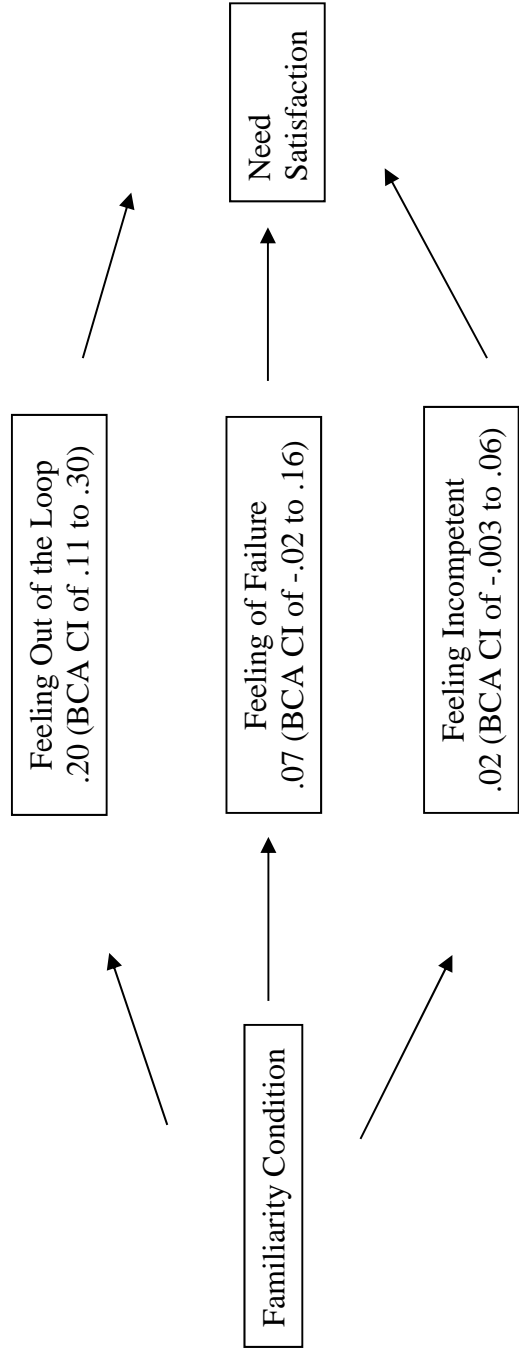


Note. † $p < .10$ , \* $p < .05$ , \*\* $p < .01$



Note. † $p < .10$ , \* $p < .05$ , \*\* $p < .01$

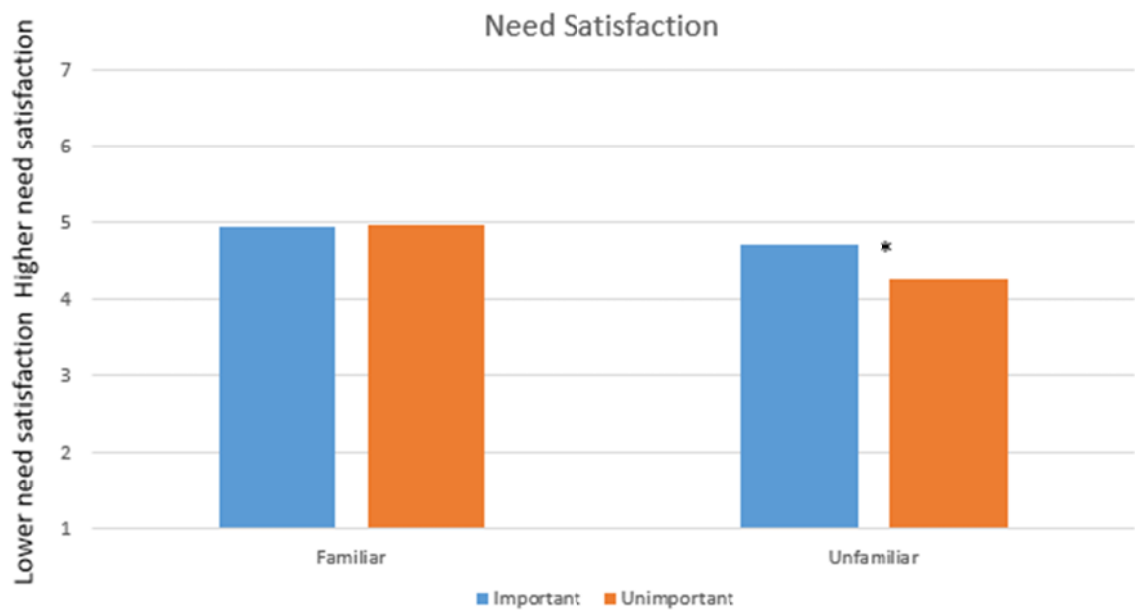
Figure 7. Three-way interaction between familiarity, participant ethnicity, and celebrity ethnicity on need satisfaction in Study 4.



Original direct effect of X on Y –  $p < .001$

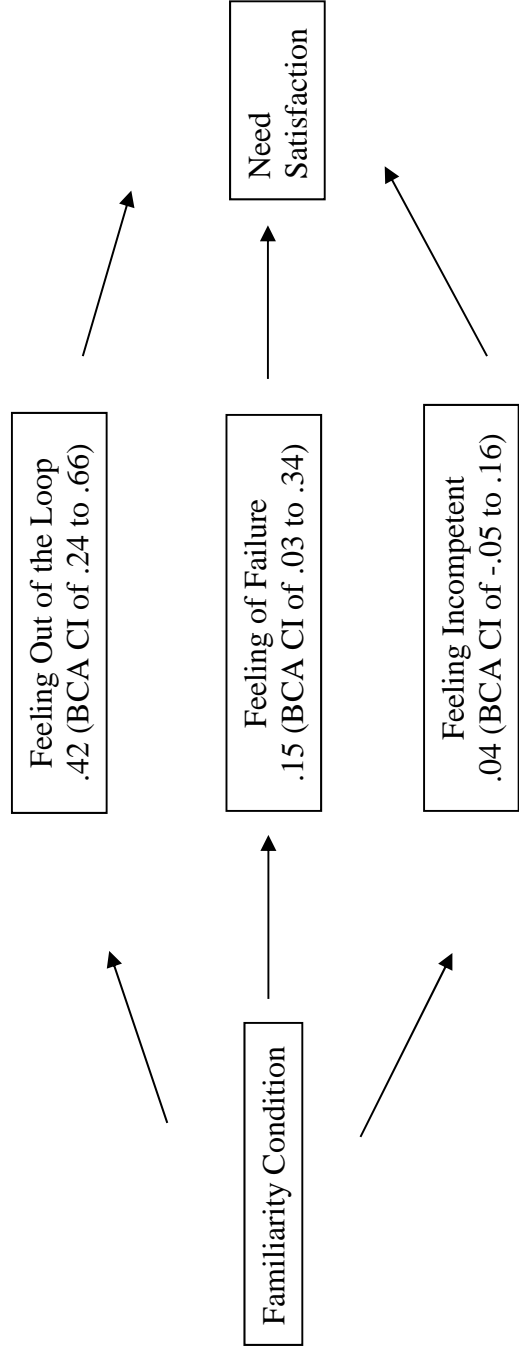
Reduced direct effect of X on Y –  $p = .121$

Figure 8. Mediation between familiarity condition and need satisfaction by feeling out of the loop and feeling of failure.



Note. † $p < .10$ , \* $p < .05$ , \*\* $p < .01$

Figure 9. Two-way interaction between familiarity and importance on need satisfaction in Study 5.



Original direct effect of X on Y –  $p = .001$   
Reduced direct effect of X on Y –  $p = .432$

Figure 10. Mediation between familiarity condition and need satisfaction by feeling out of the loop and feeling of failure.

## Appendix B. Importance Questions (Pre-Manipulation and Post-Manipulation Same)

*All measured on the following scale:*

1- Not at all    2    3    4    5    6    7 – Extremely

1. How important is pop culture to you?
2. How important is family to you?
3. How important are friends to you?
4. How important is school to you?
5. How important are sports to you?



## Appendix C. Big Five Scale

You will be presented with a number of characteristics that may or may not describe you.

Please select the number which best indicates the extent to which you agree or disagree that each statement describes you.

*All measured on the following scale:*

1. – Strongly disagree    2 – Disagree    3 – Neutral    4 – Agree    5 – Strongly agree

1.    Tends to find fault with others.
2.    Is helpful and unselfish with others.
3.    Starts quarrels with others.
4.    Has a forgiving nature.
5.    Is generally trusting.
6.    Can be cold and aloof.
7.    Is considerate and kind to almost everyone.
8.    Is sometimes rude to others.
9.    Likes to cooperate with others.
10.    Is talkative.
11.    Is reserved.
12.    Is full of energy.
13.    Generates a lot of enthusiasm.
14.    Tends to be quiet.
15.    Has an assertive personality.

16. Is sometimes shy, inhibited.
17. Is outgoing, sociable.
18. Does a thorough job.
19. Can be somewhat careless.
20. Is a reliable worker.
21. Tends to be disorganized.
22. Tends to be lazy.
23. Perseveres until the task is finished.
24. Does things efficiently.
25. Makes plans and follows through with them.
26. Is easily distracted.
27. Is depressed, blue.
28. Is relaxed, handles stress well.
29. Can be tense.
30. Worries a lot.
31. Is emotionally stable, not easily upset.
32. Can be moody.
33. Remains calm in tense situations.
34. Gets nervous easily.
35. Is original, comes up with new ideas.
36. Is curious about many different things.
37. Is ingenious, a deep thinker.
38. Has an active imagination.

39. Is inventive.
40. Values artistic, aesthetic experiences.
41. Prefers work that is routine.
42. Likes to reflect, play with ideas.
43. Has few artistic interests.
44. Is sophisticated in art, music, or literature.

Appendix D. Examples of Stimuli for Study 1 – Familiar, Unfamiliar,  
and Control Conditions

Familiar condition

Which of the following actors do you prefer?

<input type="radio"/>		<input type="radio"/>	
<input type="radio"/>		<input type="radio"/>	

Unfamiliar condition

Which of the following actors do you prefer?



Control condition

Which of the following chairs do you prefer?



## Appendix E. Basic Need Satisfaction and Mood Scale

For the following questions, please indicate the number that best represents how you felt while you were taking the personal preferences quiz.

*All measured on the following scale:*

1- Not at all      2      3      4      5      6      7 – Extremely

1. I felt “disconnected”
2. I felt rejected
3. I felt like an outsider
4. I felt good about myself
5. My self-esteem was high
6. I felt liked
7. I felt invisible
8. I felt meaningless
9. I felt non-existent
10. I felt powerful
11. I felt in control
12. I felt I had the ability to significantly alter events
13. I felt positive
14. I felt negative
15. I felt friendly
16. I felt unfriendly
17. I felt angry

18. I felt sad
19. I felt happy
20. I felt tense
21. I felt relaxed
22. I felt included
23. I felt ignored
24. I felt excluded
25. I felt out of the loop
26. I recognized most of the options in the personal preferences quiz.  
(Manipulation Check)



Appendix F. Behavioral Intentions for Pop Culture Activities, Pop Culture  
Engagement, and Other Pop Culture Questions

Behavioral Intentions

Please answer the following questions about what activities you'd like to engage in right now.

*All measured on the following scale:*

1      – Not at all    2      3      4      5      6      7 – Extremely

1.      To what extent do you want to surf the internet?
2.      To what extent do you want to go on Twitter?
3.      To what extent do you want to go on Facebook?
4.      To what extent do you want to check your e-mail?
5.      To what extent do you want to text someone?
6.      To what extent do you want to call someone?
7.      To what extent do you want to read a magazine?
8.      To what extent do you want to watch TV?
9.      To what extent do you want to listen to music?

Pop Culture Engagement

Please answer the following questions about how much you would like to do certain activities in the near future.

*All measured on the following scale:*

1      – Not at all    2      3      4      5 – Very much so

1. How much do you want to go to the movies in the near future?
2. How much do you want to go to a concert in the near future?
3. How much do you want to buy music in the near future?
4. How much do you want to visit a celebrity gossip website in the near future?
5. How much do you want to rent a movie in the near future?
6. How much do you want to watch television in the near future?
7. How much do you want to go to a sporting event in the near future?
8. How much do you want to purchase an entertainment-related magazine in the near future?

### Pop Culture Questions

Please answer the following questions about yourself.

*All measured on the following scale:*

1      – Strongly disagree    2      3      4      5      6      7 – Strongly agree

1. I want to know more about pop culture.
2. I wish I recognized more of the options when I was taking the personal preferences quiz.
3. I pretend to know about pop culture even when I don't.
4. It makes me feel better to pretend to know about pop culture, even when I don't.
5. I generally feel out of the loop on pop culture.

## Appendix G. Life Disengagement, Anomie, and Self-Efficacy

### Life Disengagement

Please answer the following questions about yourself. Be as honest as you can throughout, and try not to let your response to one question influence your response to other questions. There are no right or wrong answers.

*All measured on the following scale:*

1      – Strongly disagree      2      3      4      5 – Strongly agree

1.      There is not enough purpose in my life.
2.      To me, the things I do are all worthwhile.
3.      Most of what I do seems trivial and unimportant to me.
4.      I value my activities a lot.
5.      I don't care very much about the things I do.
6.      I have lots of reasons for living.

### Anomie

Please answer the following questions about how you feel right now.

*All measured on the following scale:*

1      – Strongly disagree      2      3      4      5 – Strongly agree

1.      It is hardly fair to bring a child into the world the way things look now.
2.      Most people don't really care what happens to the next person.
3.      These days I get a feeling that I'm just not part of things.

4. In spite of what some people say, the lot of the average person is getting worse, not better.
5. There is not much that I can do about most of the important problems that we face today.
6. In order to get ahead in the world today you are almost forced to do some things which are not right.
7. I don't really enjoy most of the work that I do, but I feel that I must do it in order to have other things that I need and want.

#### Self-Efficacy

Please answer the following questions as accurately as possible.

*All measured on the following scale:*

1 – not at all true 2 – hardly true 3 – neither untrue nor true 4 – moderately true 5 – exactly true

1. I can always manage to solve difficult problems if I try hard enough.
2. If someone opposes me, I can find the means and ways to get what I want.
3. It is easy for me to stick to my aims and accomplish my goals.
4. I am confident that I could deal efficiently with unexpected events.
5. Thanks to my resourcefulness, I know how to handle unforeseen situations.
6. I can solve most problems if I invest the necessary effort.
7. I can remain calm when facing difficulties because I can rely on my coping abilities.
8. When I am confronted with a problem, I can usually find several solutions.
9. If I am in trouble, I can usually think of a solution.
10. I can usually handle whatever comes my way.

## Appendix H. Questions About Feelings of Failure, BuzzFeed

Please answer the following questions about when you were taking the personal preferences quiz earlier.

All answered on the following scale, until noted otherwise:

1 – Not at all      2      3      4      5      6      7 – Extremely

1. I felt like I failed at the personal preferences quiz.
2. I felt like a failure at life while I was taking the personal preferences quiz.
3. I felt like I did well on the personal preferences quiz.
4. To what extent do you think other people recognized the options in the quiz you saw?
5. I felt incompetent while I was taking the personal preferences quiz.
6. I felt intelligent while I was taking the personal preferences quiz.
7. I felt sociable while I was taking the personal preferences quiz.
8. When I was taking the personal preferences quiz, I tried to look up things I didn't know on the internet.

1 – Strongly disagree      2      3      4      5      6      7 – Strongly agree

Please answer the next few questions regarding yourself.

1. I have taken a BuzzFeed quiz before.

Yes      No (if no, skips to end)

2. How often do you take BuzzFeed quizzes?

1 – Never    2    3    4    5    6    7 – Very often

3. Taking the personal preferences quiz reminded me of a BuzzFeed quiz.

1 – Strongly disagree    2    3    4    5    6    7 – Strongly agree

4. How much would you like to take a BuzzFeed quiz right now?

1 – Not at all    2    3    4    5    6    7 – Very much so

## Appendix I. Reflective Need Satisfaction and Mood Questions

For the following questions, please indicate the number that best represents how you feel right now.

*All measured on the following scale:*

1- Not at all      2      3      4      5      6      7 – Extremely

1. I feel “disconnected”
2. I feel rejected
3. I feel like an outsider
4. I feel good about myself
5. My self-esteem is high
6. I feel liked
7. I feel invisible
8. I feel meaningless
9. I feel non-existent
10. I feel powerful
11. I feel in control
12. I feel I have the ability to significantly alter events
13. I feel positive
14. I feel negative
15. I feel friendly
16. I feel unfriendly
17. I feel angry

18. I feel sad
19. I feel happy
20. I feel tense
21. I feel relaxed
22. I feel included
23. I feel ignored
24. I feel excluded
25. I feel out of the loop



VITA

## VITA

Nicole Elizabeth Iannone

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**Contact Information**

Address: Department of Psychological Sciences  
Purdue University  
703 Third Street  
West Lafayette, IN 47907-2081

E-mail Address: [niannone@purdue.edu](mailto:niannone@purdue.edu)

Cell Phone: (954) 803-8847

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**Education**

<i>Ph.D., Social Psychology</i> Purdue University, West Lafayette, IN <i>Certificate in Psychological Statistics</i> (December 2014) <i>Graduate Teaching Certificate</i> (May 2015, Anticipated) <i>Dissertation Title: Being Out of the Loop on Pop Culture</i> Advisor: Dr. Janice R. Kelly	May 2015, Anticipated
<i>M.S., Social Psychology</i> Purdue University, West Lafayette, IN <i>Thesis Title: Mood's Effect on Group Creativity</i> Advisor: Dr. Janice R. Kelly	August 2011
<i>B.S., Psychology, Cum Laude</i> University of Florida, Gainesville, FL	May 2009
<i>B.A., Criminology, Summa Cum Laude</i> University of Florida, Gainesville, FL <i>Honors Thesis Title: Aversive Racism and Juror Decisions about Hispanic and Black Defendants</i> Advisor: Dr. Lora Levett	May 2009

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### Research Interests

My research interests focus on two main areas grounded in the overarching concepts of belonging and interacting with others: small group processes and popular media culture. A large part of my interest in small groups lies in emotional and exclusion processes within groups, including being out of the loop on information that others know. My interest in popular media culture involves the effect of social media and pop culture on individuals, often related to the experience of belonging. The intersection of these two areas of interest is a program of research examining the effects of being out of the loop on pop culture.

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### Honors and Awards

*David A. Santogrossi Teaching Assistantship Award*, Spring 2015

*Compton Graduate Research Travel Award*, \$500 for conference travel, Fall 2014

*Purdue Graduate School Summer Research Grant*, \$3,000, Summer 2014

*Interdisciplinary Network for Group Research (INGRoup)*, sponsored by the National Science Foundation, \$500 to attend the inaugural INGRoup doctoral consortium, Summer 2013

*Purdue University Psychological Sciences Departmental Award for Graduate Research Innovation*, \$1,200 to support research on Emotions in Groups, Spring 2012

*Purdue University Incentive Grant*, \$500, Spring 2010 *American Psychology-Law Society Student Section Poster Award*, for the poster, "Aversive Racism and Juror Decisions about Hispanic and Black Defendants" Runner-Up, Spring 2009

*University of Florida University Scholar*, \$2,500 to support the senior thesis project, "Aversive Racism and Juror Decisions about Hispanic and Black Defendants," Spring 2008

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### Publications

**Iannone, N. E.,** McCarty, M. K., Kelly, J. R., & Williams, K. D. (2014). Friends with each other but strangers to you: Source relationship softens ostracism's blow. *Group Dynamics: Theory, Research, and Practice, 18*, 349-356.

Kelly, J. R., **Iannone, N. E.,** & McCarty, M. K.. (2014). The functions of shared affect in small groups and teams. In C. von Scheve & M. Salmela (Eds.), *Collective emotions*. New York, NY: Oxford University Press.

McCarty, M. K., **Iannone, N. E.**, & Kelly, J. R. (2014). Stranger danger: The role of perpetrator and context in moderating reactions to sexual harassment. *Sexuality and Culture*, 18, 739-758. doi: 10.1007/s12119-013-9215-0

Kelly, J. R., McCarty, M. K., & **Iannone, N. E.** (2013). Interaction in small groups. In J. Delamater (Ed.), *The handbook of social psychology* (2nd ed., pp. 413-438). New York, NY: Plenum Publishers.

### Manuscripts under Review or Revising for Resubmission

**Iannone, N. E.**, Kelly, J. R., & Williams, K. D. (under review). “Who’s that?” The negative effects of being *out of the loop* on pop culture. *Psychology of Popular Media Culture*.

Kelly, J. R., **Iannone, N. E.**, & McCarty, M. K. (revise & resubmit). Emotional contagion of negative emotions is automatic: An evolutionary explanation. *British Journal of Social Psychology*.

McCarty, M. K., **Iannone, N. E.**, Jones, E. E., & Kelly, J. R. (under review). Ignorance can be bliss: Out of the loop on positive versus negative information. *The Journal of Social Psychology*.

### Manuscripts in Preparation (Data Collected)

**Iannone, N. E.**, Kelly, J. R., & McCarty, M. K. (in preparation). Emotions in everyday groups.

**Iannone, N. E.**, McCarty, M. K., Branch, S. E., & Kelly, J. R. (in preparation – manuscript available upon request). Tweet tweet: How and why people use Twitter.

**Iannone, N. E.**, McCarty, M. K., Kelly, J. R. (in preparation – manuscript available upon request). With a little help from your friend: Transactive memory in best friendships.

McCarty, M. K., **Iannone, N. E.**, & Kelly, J. R. (in preparation). Being out of the loop on positive versus negative information.

McCarty, M. K., **Iannone, N. E.**, & Kelly, J. R. (in preparation – manuscript available upon request). Expertise comes in all sizes: Gender differences in couples’ transactive memory systems.

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## Conference Presentations

### Conference Talks:

- McCarty, M. K., **Iannone, N. E.**, & Kelly, J. R. (2014, October). *Information valence moderates out of the loop experiences*. Paper to be presented at the meeting of the Society for Experimental Social Psychology, Groups Preconference, Columbus, OH.
- Iannone, N. E.**, McCarty, M. K., & Kelly, J. R. (2014, May). *Transactive memory processes in friends*. Paper presented at the meeting of the Midwestern Psychological Association, Chicago, Illinois.
- Iannone, N. E.**, McCarty, M. K., Kelly, J. R., & Williams, K. D. (2013, July). *Being a third wheel: Exclusion by friends softens ostracism's blow*. Paper presented at the meeting of the INGRoup Conference, Atlanta, Georgia.
- McCarty, M. K., **Iannone, N. E.**, Gulker, J. E., & Kelly, J. R. (2013, July). *The role of affective diversity in group dynamics and performance*. Paper presented at the meeting of the INGRoup Conference, Atlanta, Georgia.
- Branch, S. E., **Iannone, N. E.**, McCarty, M. K., & Kelly, J. R. (2013, May). *Self-identification of parasocial relationships*. Paper presented at the meeting of the Midwestern Psychological Association, Chicago, Illinois.
- Iannone, N. E.**, Kelly, J. R., & Williams, K. D. (2013, May). *"I'm out of the loop on pop culture!"* Paper presented at the meeting of the Midwestern Psychological Association, Chicago, Illinois.
- Iannone, N. E.**, McCarty, M. K., & Kelly, J. R. (2013, May). *Can emotional contagion be moderated?* Paper presented at the meeting of the Midwestern Psychological Association, Chicago, Illinois.
- McCarty, M. K., **Iannone, N. E.**, & Kelly, J. R. (2013, May). *Reactions to sexual harassment: Comparing known and stranger harassers*. Paper presented at the meeting of the Midwestern Psychological Association, Chicago, Illinois.
- Iannone, N. E.**, & Kelly, J. R. (2012, July). *Group creativity: The positives of being negative*. Paper presented at the meeting of the INGRoup Conference, Chicago, Illinois.
- McCarty, M. K., **Iannone, N. E.**, Wirth, J. H., & Kelly, J. R. (2012, July). *The role of mood similarity and emotional contagion in dyadic performance*. Paper presented at the meeting of the INGRoup Conference, Chicago, Illinois.

Kelly, J. R., McCarty, M. K., **Iannone, N. E.** (2012, July). *Emotional experience in groups*. Paper presented at the meeting of the INGRoup Conference, Chicago, Illinois.

**Iannone, N. E.**, & Kelly, J. R. (2012, May). *How consecutively experienced moods affect selfregulation*. Paper presented at the meeting of the Midwestern Psychological Association, Chicago, Illinois.

### **Conference Posters:**

**Iannone, N. E.**, Ren, D., McCarty, M. K., Kelly, J. R., Williams, K. D. (2015, February). *Heroes and villains: We want to know them both*. Poster to be presented at the meeting of the Society for Personality and Social Psychology Conference, Long Beach, California.

McCarty, M. K., **Iannone, N. E.**, Kelly, J. R., Hollingshead, A. B. (2015, February). *Trait affect and the perceived importance of positive and negative opinions*. Poster to be presented at the meeting of the Society for Personality and Social Psychology Conference, Long Beach, California.

**Iannone, N. E.**, Branch, S. E., McCarty, M. K., & Kelly, J. R. (2014, February). *Tweet tweet: How and why people use Twitter*. Poster presented at the meeting of the Society for Personality and Social Psychology Conference, Austin, Texas.

**Iannone, N. E.**, McCarty, M. K., & Kelly, J. R. (2013, January). *How leaders' moods impact group performance on two different tasks*. Poster presented at the meeting of the Society for Personality and Social Psychology, New Orleans, Louisiana.

McCarty, M. K., **Iannone, N. E.**, Jones, E. E., Kelly, J. R. (2013, January). *Happy being out of it: Information valence moderates reactions to being out of the loop*. Poster presented at the meeting of the Society for Personality and Social Psychology, New Orleans, Louisiana.

**Iannone, N. E.**, & Kelly, J. R. (2012, May). *How emotion repair influences the effect of consecutive moods on self-regulation*. Poster presented at the meeting of the Midwestern Psychological Association, Chicago, Illinois.

**Iannone, N. E.**, & Kelly, J. R. (2011, May). *Any mood is better than no mood at all: Mood's effect on group creativity*. Poster presented at the meeting of the Midwestern Psychological Association, Chicago, Illinois.

**Iannone, N. E.**, & Kelly, J. R. (2011, January). *How emotional intelligence and mood affect creativity*. Poster presented at the meeting of the Society for Social and Personality Psychology, San Antonio, Texas.

**Iannone, N. E., & Levett, L. M.** (2010, May). *Aversive racism and differences in juror decisions based on defendant race*. Poster presented at the meeting of the Midwestern Psychological Association, Chicago, Illinois.

**Iannone, N. E., & Levett, L. M.** (2009, March). *Aversive racism and juror decisions about Hispanic and Black defendants*. Poster presented at the meeting of the American Psychology-Law Society, San Antonio, Texas.

## **Teaching Experience**

### **Course Instructor at Purdue University:**

*Introduction to Research Methods in Psychology*

Instructor rating: 4.5/5.0

Course rating: 4.2/5.0

*Introduction to Social Psychology - Distance Learning Online Course*

Instructor rating: 4.4/5.0

Course rating: 4.2/5.0

*Introduction to Social Psychology*

Instructor rating: 4.3/5.0

Course rating: 4.5/5.0

*Guest Instructor for Social Psychology in Film*

### **Teaching Assistant at Purdue University:**

*Research Methods in Psychology (+Laboratory)*

*Elementary Psychology (3 semesters)*

*Elementary Psychology (Hybrid online course)*

*Introduction to Human Sexuality*

*Introduction to Social Psychology*

*Close Relationships*

*Stereotyping and Prejudice (2 semesters)*

*Psychology of Personality*

*Social Image and Self Identity*

*Child Psychology*

*Coordinator for Introduction to the Science and Fields of Psychology*

## **Evidence of Mentorship Effectiveness**

### **Institutional Conference Presentations with Undergraduate Authors:**

Burgess, D. L.\*, McCarty, M. K., Iannone, N. E., & Kelly, J. R. (2012). *The racial glass cliff: Examining whether race and company performance affects hiring processes for leadership positions*. Poster presented at the Purdue Undergraduate Research Conference.

Marks, C. M.\*, Iannone, N. E., McCarty, M. K., & Kelly, J. R. (2012). *The effect of masculinity threat on perceptions of homosexual or heterosexual, masculine or feminine targets*. Poster presented at the Purdue Undergraduate Research Conference.

\*Denotes undergraduate author

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### **Departmental Service**

Purdue University Social Psychology Colloquium Series  
*Co-Coordinator, Fall 2013-Spring 2014*

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### **Professional Service**

#### **Ad hoc Reviewer:**

*Emotion*  
*Group Dynamics: Theory, Research, and Practice*  
*Group Processes and Intergroup Relations*  
*Journal of Personality and Social Psychology*  
*Journal of Social Psychology*  
*Social Influence*

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### **Professional Affiliations**

Interdisciplinary Network for Group Research (INGRoup)  
 Midwestern Psychological Association (MPA)  
 National Communication Association (NCA)  
 Psi Chi National Honor Society in Psychology  
 Society for Personality and Social Psychology (SPSP)

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## References

Dr. Janice R. Kelly  
Professor, Psychology  
Department of Psychological Sciences  
Purdue University  
kellyjr@purdue.edu  
703 Third St.  
West Lafayette, IN 47907  
(765) 494-9474

Dr. William G. Graziano  
Professor, Psychology  
Department of Psychological Sciences  
Purdue University  
graziano@purdue.edu  
703 Third St.  
West Lafayette, IN 47907  
(765) 494-7224

Dr. Kipling D. Williams  
Professor, Psychology  
Department of Psychological Sciences  
Purdue University  
kipw@purdue.edu  
703 Third St.  
West Lafayette, IN 47907  
(765) 494-0845

Dr. James M. Tyler  
Associate Professor, Psychology  
Department of Psychological Sciences  
Purdue University  
tyler@purdue.edu  
703 Third St.  
West Lafayette, IN 47907  
(765) 494-3313

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